# SOURCE WATER ASSESSMENT REPORT

ASH GROVE CEMENT WEST - RIVERGATE PWS ID# 4194453 PORTLAND, OREGON 97203 MULTNOMAH COUNTY

July, 2000

Prepared for Ash Grove Cement West Rivergate



by



Department of Human Services Oregon Health Division Drinking Water Program

Available in Alternate Formats by contacting the OHD DWP at (541) 726-2586

## **Source Water Assessment Report**

## Ash Grove Cement West Rivergate

### **Assessment Summary**

The Source Water Assessment Program, mandated by the 1996 Amendments to the Safe Drinking Water Act, requires that states provide the information needed by public water systems to develop protection plans if they choose. The information that is provided includes the identification of the area most critical to maintaining safe drinking water, i.e., the Outreach Area, an inventory of potential sources of contaminants within the Outreach Area, and an assessment of the relative threat that these potential sources pose to the water system.

This report identifies the Outreach Area for the Ash Grove Cement West as a circle with radius of 500 feet centered on the system's 1963 well. The aquifer supplying the drinking water to the system is a shallow unconfined silt and sand aquifer, with the water table occurring at a depth of approximately 27 feet.

The aquifer is considered highly sensitive based on the shallow water table, the highly permeable aquifer and overlying materials. The age of the well, possible degradation of it's underground components, and presence of highly permeable soils within the Outreach Area add to the sensitivity of the aquifer.

Thirteen other wells occur in the vicinity and at this time do not pose a significant risk to the system.

Potential sources of contaminants within the Outreach Area include an onsite sewage disposal system (which is undergoing abandonment), a waste oils storage tank with a containment spill system, and truck and railroad transportation corridors. Relevant Best Management Practices for septic systems and drainfields have been included within this report.

The size of the Outreach Area is designed to approximate the next two years of groundwater supply for the Ash Grove Cement West. The two year time frame is used as a conservative estimate of the survival time of some viruses.

The costs associated with contaminated drinking water are high. Developing an approach to protecting that resource will reduce the risks of a contamination event occurring. This report is designed to provide you with the basic information you need to put together an appropriate strategy to protect your drinking water. We have summarized the local geology and well construction issues as they pertain to your drinking water source. We have identified the area we believe to be most critical to preserving your water quality (the Outreach Area) and helped to identify potential sources of contamination within that area. In addition, we've provided you with

recommendations i.e. BMPs, regarding the proper use and practices associated with those potential contaminant sources.

We believe public awareness is a powerful tool in protecting drinking water. The information in this report will help you accomplish the task of increasing the level of public awareness about the relationship between what goes on at the surface and the quality of the water that they drink.

#### Introduction and Overview

Traditionally, water systems have relied on proper water system management, water quality monitoring and, if necessary, water treatment to ensure that the water they serve meets drinking water standards. In spite of the best of these efforts, however, contamination of drinking water can still occur. The costs, both tangible and intangible, to a water system contending with a contaminated water supply are significant. At minimum, there is the cost of increased monitoring that will be required to make certain that the water does not pose a significant health risk. At contaminant concentrations exceeding a drinking water standard, the system may be dealing with the cost of installing and maintaining treatment, the loss of the drinking water source, i.e., a well, and most assuredly, a concerned and often frightened public.

Beginning with the 1986 Amendments to the Safe Drinking Water Act, an additional "barrier to contamination" was recognized at the federal level. A shift from the "reactive" approach of water treatment to a "proactive" approach of prevention began to take place. Although water treatment may be necessary in some cases, it is much more cost effective to prevent the contamination from happening in the first place. A recent estimate by the Oregon Department of Environmental Quality (DEQ) and the Oregon Health Division's Drinking Water Program (OHD) compared the estimated cost of prevention (less than \$15 per resident) to the actual cost of investigation and treatment (more than \$1500 per resident) in a small Oregon community impacted by a volatile organic contaminant that exceeded the drinking water standard.

Oregon has a Drinking Water Protection Program in place for groundwater systems, i.e., wells and springs. In order to protect a drinking water resource, a water system must know where the drinking water comes from, what potential sources of pollution exist and what level of threat each presents to the system's drinking water. Up until recently, the costs associated with acquiring this information were the responsibility of the water system, a financial burden that even the most proactive water systems found hard to meet. The 1996 Amendments to the Safe Drinking Water Act lifted that burden from water systems by requiring that the states conduct Source Water Assessments for the water systems within their respective boundaries. The purpose of the Assessment is to provide the water systems with the information that they need to develop a strategy to protect their source of drinking water if they choose.

As mandated by the 1996 Amendments, a Source Water Assessment consists of the following: (1) the identification of the area that directly overlies that part of the aquifer supplying drinking water

to the well or spring, (2) an inventory of potential sources of contamination within that area, and (3) the evaluation of the susceptibility of the water system to contamination from those sources. Funding for assessments was provided to the states through the Act as part of the state's Drinking Water Revolving Loan Fund.

The DEQ and OHD worked with a citizen's advisory committee and with OHD's Drinking Water Advisory Committee to design a program that would meet the needs of Oregon's public water systems. The Environmental Protection Agency (EPA) has certified that Oregon's plan meets the requirements of the Safe Drinking Water Act. Within the program, OHD has the responsibility of working with groundwater systems in general, and with transient noncommunity water systems specifically.

Within this report, you will find general descriptions of the various elements of the Source Water Assessment Program, as well as specific information regarding source of your water system and the threats to your drinking water quality. Although developing a Drinking Water Protection Plan is voluntary in Oregon, it is hoped that the information provided in the Source Water Assessment Report will be used as a basis for reducing the risk of contamination to your source. Later in this report, you will be given some specific recommendations on how to accomplish this risk reduction for your system. The bulk of these recommendations center on an <u>outreach program</u>, providing information to those residences, agricultural operations and businesses that live or operate within the identified area.

#### **Groundwater Basics**

In order to protect a groundwater source of drinking water, it is important to understand how the groundwater system works, e.g., where groundwater comes from, how it occurs in the subsurface, how it moves and how it can become contaminated. Included in this report are several Fact Sheets about groundwater that you can use to help increase the awareness of others regarding groundwater and its susceptibility to contamination.

When a well is drilled, the driller passes through a distance of soil, sediments and/or bedrock in which all the open spaces between the soil and sediment particles and in the fractures of the bedrock are filled with air. No water can be derived from this zone, referred to as the vadose zone. If the driller continues, he or she will eventually encounter a depth in which all the open spaces are filled with water. This is groundwater and we have just crossed the water table to reach it. Groundwater, therefore, does not occur as underground rivers, pools or veins, rather it simply occurs within the open spaces within the geologic material. We refer to any geologic material that contains water and that can yield the water to a well as an aquifer. Aquifers can be any geologic material, e.g., sand and gravel, porous lava flows, fractured bedrock, etc., that can hold water and when drilled into will supply that water to the well.

So where does the groundwater in the aquifer come from? Groundwater is part of the hydrologic cycle that controls the distribution of water on the surface of this planet. It is therefore linked to

other sources of water, notably surface water as streams, rivers and lakes. Virtually without exception, the groundwater originates as precipitation at the surface that sinks through the soil and percolates down to the water table. This is what makes groundwater vulnerable to contamination. The water recharging the aquifer originates at the surface. The downward percolating water has to pass through whatever is at the surface or just below it. As it does so, the water can dissolved contaminants and carry them downward to the aquifer.

The direction and speed in which groundwater moves is controlled by the slope of the water table, which has high areas and low areas just like the ground surface, and the permeability of the aquifer. In general, groundwater moves at a velocity of inches to a few feet per day. The pumping of a well can significantly influence the movement of groundwater by drawing down the water table in its vicinity. This produces a "capture zone" that can draw groundwater in from some distance away. We identify this distance during the delineation phase of the assessment. We refer to the delineation of a transient noncommunity water system's drinking water source as the identification of the "Outreach Area".

#### Source Water Assessment

Above, the Source Water Assessment was described as consisting of three components:

- The identification of the drinking water source, i.e., the Outreach Area;
- Inventory of potential contaminant sources within the Outreach Area;
- ► The susceptibility of the drinking water source to those contaminant sources

#### Outreach Area.

The Outreach Area for a transient noncommunity water system is based on the adjusted pump rate, i.e., actual pumpage records or 125% of the estimated average daily use during the three highest use months of the year. The area is a circle, the radius of which reflects the next two years worth of water in the aquifer. A two-year supply was chosen because one of the sources of contamination that we are concerned with for your system is microbial pollutants and data regarding survival rates of bacteria and viruses indicate that some of these organisms, specifically some viruses, may last as long as two years in groundwater. The Outreach Areas are defined as follows:

Population	Radius (feet)	Total Area (mi²)
< 100	500	0.03
100-499	1,000	0.11

500-3,300	1,500	0.25
> 3,300	2,000	0.45

We have located your source(s) using a Trimble GeoExplorer II Global Positioning System (GPS) unit. The data has been differentially corrected to remove some of the common positioning errors. The location of the source(s), with the corresponding Outreach Area, have been placed in a Geographic Information System (GIS) layer and overlain onto a U.S.G.S. 7.5 minute topographic map. This map is included within this report and will be included in a statewide database being developed for public water systems.

## **Inventory of Potential Contaminant Sources.**

Consistent with the monitoring requirements for transient noncommunity water systems, the Source Water Assessment inventory focuses on contaminants that can cause an acute response, i.e., symptoms can arise from a single exposure, in individuals who drink the water. For the purpose of the inventory, a list of known potential sources of nitrate and micro-organism contamination are included in the report appendix. The primary source of site-specific report data for the inventory has been the result of your work in identifying potential sources of contamination within the outreach area, supplemented by technical assistance from OHD during the field visit. We encourage you to periodically revise the inventory found in this report by identifying any newly developed or altered potential sources of contamination. Although the focus is on sources of nitrate and microbial contamination, it is useful to identify other potential contaminant sources as well, e.g., gas stations, dry cleaners, machine shops, etc.

## Susceptibility of the Drinking Water Source.

The final step in the Source Water Assessment is the susceptibility analysis, i.e., how vulnerable is the drinking water source to potential contaminants at or near the surface. Whether or not a given drinking water source is susceptible depends primarily on two issues: are there potential sources of contamination within the Outreach Area, and is the aquifer sensitive to contamination, i.e., is it likely that a contaminant at the surface would migrate to the water table and into the well. The identification of potential contaminant sources within the Outreach Area was accomplished during the inventory phase of the assessment. Aquifer sensitivity depends on a number of factors that can collectively or individually allow the aquifer to become contaminated:

**Depth to the water-bearing zone:** The shorter the distance downward to the water table, the greater the potential of a contaminant, if released, to migrate to the aquifer.

**Nature of the Aquifer:** Aquifers are often classified as unconfined or confined. Unconfined aquifers are often shallow and are not separated from the surface by a protective low-permeability layer. Confined aquifers are often deeper and are overlain by a protective low-permeability layer. Unconfined aquifers are more sensitive than confined aquifers.

Characteristics of the Aquifer: Aquifers that are highly permeable, i.e., gravels and boulders, sand and gravel without significant clay layers, etc., or do not provide for natural filtration as water moves through them, i.e., are fractured, are considerably more sensitive than other types of aquifers.

Characteristic of the Confining Layer: The thicker the confining unit the more likely it is to be persistent laterally and the more it retards the movement of contaminants downward. Confining units consisting of plastic clay are much more protective than those consisting of silt.

**Soil Types:** Some types of soils are thinner and/or have higher permeability than others. We consider those soils in which water could move through under saturated conditions in less than 65 hours as being highly sensitive. Recognition of these soil types and their occurrence within the Outreach Area can indicate those parts of the Outreach Area where contamination is most likely to cross the soil zone.

An additional threat to drinking water quality within the Outreach Area are old wells or production wells that have been improperly constructed. Wells are used to extract groundwater form the aquifer, however if they have lost their integrity or were improperly constructed, they may provide a conduit for contaminants to move directly to the aquifer.

Well Construction: When a well is drilled in soft or loose materials, a casing (steel or plastic pipe) is inserted to hold the hole open during and after drilling. The casing does not in itself provide adequate protection from contaminated shallow water gaining access to the well. Contaminated shallow water can migrate to the casing and follow the casing directly down to the well. The real protection from potentially contaminated shallow water is the casing seal. This seal is put in place by drilling a hole that is at least four inches greater in diameter than the final casing. After the larger hole is drilled, casing is put in and the annular space between the casing and seal is filled with a sealant, either bentonite (an expanding clay), cement, or a combination of the two. The casing seal must by law be placed a minimum of 18 feet below the surface, however, it should be placed to a depth that is controlled by the local geology, e.g., for a confined aquifer, the casing seal should extend down to the confining layer. Having a well drilled by a licensed well constructor greatly reduces the risk that the well will be improperly constructed.

Other Wells: We assume that the greater the number of wells in the vicinity of the public water supply well, the greater the risk of encountering a well has been improperly constructed. Even a properly constructed well has a given life-time. The seal may begin to deteriorate with time and eventually may fail, allowing shallow waters to gain access to the aquifer. As an estimate of the potential risk posed by other wells in the area, we total the number of well reports that are on file at the Water Resources Department in the section containing the system's production well and develop a score based on number and age as follows:

Other Well Score = (No. of wells 1979 or younger) +  $4 \times (No. of wells older than 1979)$ 

An Other Well score greater than 400 is considered to cause the aquifer to be moderately sensitive to contamination from the surface.

Monitoring History: The record of water quality as indicated by the routine monitoring history of the water system provides an indicator of relative risk to the system. Clearly, if a contaminant is detected at the source, there is a pathway from the surface to the aquifer that allowed that contaminant to reach the water table. Coliform and nitrate detections are particularly useful as indicators of the existence of contaminant pathways. Coliforms are ubiquitous in the environment and their presence in the source water may indicate a microbial source nearby, or that a pathway exists, either naturally as a result of soil and aquifer characteristics, or artificially, through a failed or inadequate casing seal. Nitrate provides similar information, and given its mobility in the subsurface, will arrive at the well sooner than other contaminants that <u>may</u> also be moving toward the aquifer.

## Site-Specific Information for Ash Grove Cement West

#### Location of Ash Grove Cement West's Well

The well was located using Trimble GeoExplorer II GPS unit. Data collection specifics include:

- ▶ a minimum of 150 individual measurements,
- linked to a minimum of four satellites,
- a PDOP of less than 6 (pertains to precision of measurement),
- a signal to noise ratio of greater than 5

The raw data was subjected to differential correction using the PATHFINDER software. The location data for your well is as follows:

45° 37' 22.6094" North Latitude 122° 46' 57.1266" West Longitude

## Nature and Characteristics of the Aquifer

The aquifer supplying Ash Grove Cement West's well consists of interlayered sands, gravels, clays and silts. These represent alluvial (river) deposits of Holocene age (1.6 million years ago to present day).

The aquifer is overlain by approximately 5 feet of sand, 7 feet of blue clay, and 15 feet of sand and silt. The static water level (water level in the well when it is at rest, i.e. not being pumped) was reported by the driller as 27 feet below the surface. Therefore the aquifer is considered to be unconfined with a water table depth of approximately 27 feet.

#### Well Construction

The well was drilled in May 1963 by R.J. Strasser Well Drilling Co.; the well report accompanies this report. The initial hole was drilled to 212 feet with a 12 inch diameter casing set to 212 feet. The cement grout casing seal was properly set to 25 feet. Perforations were placed from 194 to 206 feet. Water enters through the perforated portion of the well.

#### Other Wells

Well report records indicate that there are thirteen other wells within the section containing the Ash Grove Cement West's well. Eight were drilled prior to 1979, the others after 1979. This leads to an Other Well score of 37, well below the score of 400 which would be regarded as a significant risk to the system.

## **Monitoring History**

Health Division records show there have been zero mg/L detections of nitrate in the water system and that there have been no detections of coliform within the last 3 years (we do not check back any further than 3 years for coliform monitoring compliance).

## **Sensitivity Summary**

The aquifer sensitivity for Ash Grove Cement West is summarized on the sensitivity summary sheet in the appendix. If a criterion on the form is checked 'no', it implies that, based on our evaluation, that criterion does not contribute significantly to the aquifer's sensitivity. We have identified the following criteria which we believe increases the aquifer's sensitivity to contamination from the surface.

## 1. Highly Sensitive Criteria.

Our assessment of the well report indicates that the aquifer is unconfined in nature and consists of sand and silts. Aquifers consisting of unconsolidated material are considered to be among the most sensitive types of aquifers. Further, the water table is at a depth of approximately 27 feet. The material making up the aquifer and the layers above the aquifer are likely to be highly permeable. There are no significant clay layers separating the aquifer from the surface. The shallow nature of the water table and the highly permeable character of the unsaturated zone make the aquifer highly sensitive to potential contaminant sources at the surface.

## 2. Moderately Sensitive Criteria.

The age of the well, originally constructed in 1963 also contributes to the sensitivity of the system. Casing seals do deteriorate with time. The system is therefore considered to be moderately sensitive to contamination from surface activities.

There is one soil within the Outreach Area, namely Pilchuck Urban Land Complex. It has a high permeability. Specifically, the estimated travel time for water crossing this highly permeable soil from the surface under saturated conditions is less than 5 hours. Little opportunity for degradation of a contaminant within the soil zone would occur for contaminants such as nitrate. On the soil map in the appendix the Pilchuck Urban Land Complex is labeled as 33A.

## Susceptibility Analysis for the Ash Grove Cement West

As described above, the aquifer supplying Ash Grove Cement West well is considered highly sensitive because of the shallow unconfined nature of the aquifer. Highly permeable soils exist within the Outreach Area and also contribute to the sensitivity of the aquifer. Potential contaminate sources located on the highly permeable soils will pose a greater risk to the drinking water supply, with the risk becoming greater as the distance between the source and the well becomes smaller.

The land and land use activities within the outreach area define the potential sources of contamination that may affect the groundwater quality. The following potential sources of contamination were found within the Ash Grove Cement West Outreach Area:

Potential Sources of Contamination	Contaminant of Concern	Approximate Distance from Source	Highly Sensitive Soils? Y/N	Risk to Groundwater
On-site sewage disposal system(s) NOTE: Sewage disposal system is in the process of being abandoned. System is connecting to city sewer.	Total and fecal coliform bacteria and other micro- organisms, nitrates and household hazardous wastes	150' SE	Y	Low
Above ground waste oil storage tank with self containment spill system	Inorganic and volatile organic chemicals	115' W/NW	Y	Moderate
Transportation Corridors: Truck Traffic Railroad	Chemicals from a spill	Within 500' N & W	Y	Moderate

<sup>\*</sup> Y/N implies that some of the potential sources are located in highly sensitive soils and some are not.

Three potential contaminant source types were identified within the Outreach Area, namely sewage disposal system, waste oil tank with self containment spill system, and transportation corridors.

• The location of the sewage disposal system may pose a risk in terms of both microbial

- contaminants, nitrate, and discarded household chemicals. However it must be noted that this is currently being abandoned as the facility is connecting to city sewer.
- Storage tanks pose a threat in the form of leaks or spills. However it must be noted that a self containment spill system has been installed under the tank which would greatly reduce the potential for spilled material entering the groundwater.
- Local transportation corridors are potential sources of herbicides, automotive and locomotive wastes, and accidental chemical spills.

## **Best Management Practices**

It is our experience that serious contamination events are rare when prudent practices are followed in the use of potential pollutants. Rather, it is the misuse of chemicals or activities, or the accidental release of a contaminant that poses the greatest threat. We believe that education is the key to reducing the risk of contamination of a water supply. Individuals who work, live or do business within your Outreach Area need to be aware that the things they do at the surface can impact aquifer water quality.

This education can best be accomplished through a combination of increasing the awareness of how the groundwater system works and providing recommendations of the proper use and handling of chemicals or other contaminants, i.e., BMPs or Best Management Practices, that are directed towards specific activities that occur within your Outreach Area. We have included sample hand outs that provide some of this information in the Appendix of this document. We fully realize that you probably do not have complete control of surface activities within your Outreach Area. However, engaging your neighbors in friendly conversations regarding threats to your, and in most cases their, drinking water, while providing BMPs that are tailored to their activities, will probably be successful if they are offered in an informative manner. Simply pointing out that everyone, including yourself, can contribute to long-term drinking water quality by following the simple common sense practices that are outlined in the BMPs can be a great first step.

Based on the inventory conducted, the following BMPs have been provided in the Appendix:

- Groundwater Contamination and Septic Systems
- Household Hazardous Waste
- Improving Petroleum Product Storage
- Improving Hazardous Waste Management
- Improving Household Wastewater Treatment
- Business & Industrial Operation

#### Conclusions

The Source Water Assessment Program, mandated by the 1996 Amendments to the Safe Drinking Water Act, requires that states provide the information needed by public water systems to develop

protection plans if they choose. The information that is provided includes the identification of the area most critical to maintaining safe drinking water, i.e., the Outreach Area, an inventory of potential sources of contaminants within the Outreach Area, and an assessment of the relative threat that these potential sources pose to the water system.

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Potential sources of contaminants within the Outreach Area include an onsite sewage disposal system (which is undergoing abandonment), a waste oils storage tank with a containment spill system, and truck and railroad transportation corridors. Relevant Best Management Practices for septic systems and drainfields have been included within this report.

The size of the Outreach Area is designed to approximate the next two years of groundwater supply for the Ash Grove Cement West. The two year time frame is used as a conservative estimate of the survival time of some viruses.

#### Recommended Use of the Source Water Assessment Report

As outlined above, the costs associated with contaminated drinking water are high. Developing an approach to protecting that resource will reduce the risks of a contamination event occurring. This report is designed to provide you with the basic information you need to put together an appropriate strategy to protect your drinking water. We have summarized the local geology and well construction issues as they pertain to your drinking water source. We have identified the area we believe to be most critical to preserving your water quality (the Outreach Area) and helped to identify potential sources of contamination within that area. In addition, we have provided you with recommendations, i.e., BMPS, regarding the proper use and practices associated with those potential contamination sources. Keep this report with your records, it contains information regarding your system that will be useful to you both in the short- and long-term.

We urge you to make copies of the map of the Outreach Area, as well as the Groundwater Fact sheets, potential contaminant sheets and brochures related to septic systems and household

chemicals, to distribute to neighbors and businesses within your Outreach Area. Let them know that contaminants can move down to the aquifer with infiltrating precipitation, particularly in areas covered by high-permeability soils. Many individuals do not understand that the improper disposal of even small amounts of these chemicals, on the ground, in ditches, or down the drain can potentially cause problems either collectively or individually over time.

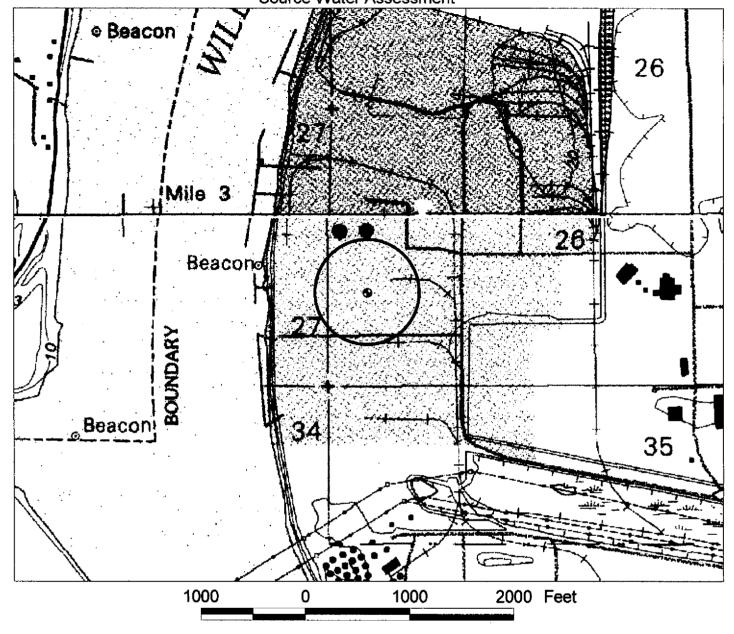
We believe public awareness is a powerful tool in protecting drinking water. The information in this report will help you accomplish that task. If you need any assistance from the Health Division, please feel free to contact us.

## **Appendix**

- 1. Map of the Outreach Area
- 2. Soil Map for the Outreach Area
- 3. Sensitivity Summary Sheet
- 4. Well Report
- 5. Best Management Practices:
  - Groundwater Contamination and Septic Systems
  - Household Hazardous Waste
  - Improving Petroleum Product Storage
  - Improving Hazardous Waste Management
  - Improving Household Wastewater Treatment
  - Business & Industrial Operation
- 6. Source Water Assessment Program: Transient Noncommunity Water Systems
- 7. Groundwater Information Sheets
- 8. Potential Sources of Source Water Contamination Transient Noncommunity Water Systems
- 9. Health Effects Information: Nitrate
- 10. Health Effects Information: Coliform Bacteria
- 11. Fact Sheet: Coliform Bacteria and Disinfecting a Well

NOTE: Additional copies of the appendix materials are available upon request by calling (541) 726-2586

# Ash Grove Cement West - Rivergate Industrial Park Public Water System Source Water Assessment



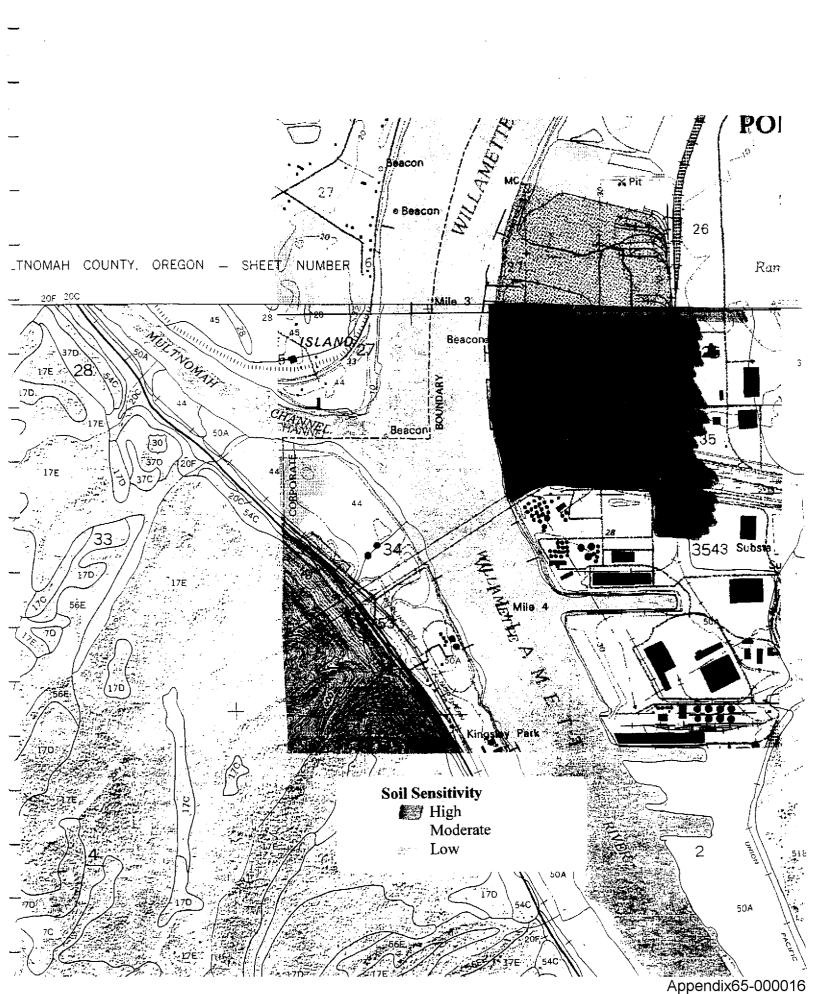
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Prepared by: K. Kelley Reviewed by: D. Nelson

Date: 6/20/2000 File #: 4194453 Radius: 500' USGS Linnton, OR Quadrangle USGS Sauvie Island, OR Quadrangle (Part Sections) 7.5 Series Topographic

GPS Well Data: 45°37'22.6094 122°46'57.1266

GPS Elevation Data: 17.840'



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The original and first copy
of this report are to be
filed with the
STATE ENGINEER, SALEM 10, OREGON
within 30 days from the date
of well completion.

## WATER WELL REPORT

STATE OF OREGON (Please type or print)

MULT 001730

(1) OWNER:  Name ASH GROVE LIME AND PRETAND COVERED	(11) WELL TESTS: Downed below static level by see a pump best made? (I Yes   No If yes, by whom?	AST 72	
Address PORTLAND DEE	Yield: 57 gal/min, with 9 ft. drawdown after	5 hrs.	
102124	п и п	77	
	п н п	27	
(2) LOCATION OF WELL:	Bailer test gal/min, with ft, drawdown after	r hrs.	
County MULT. Driller's well number, 4149	Artesian flow g.p.m. Date		
14 14 Section 27 T. 2NR. / W. W.M.	Temperature of water 500 Was a chemical analysis made?	Yes No	
Bearing and distance from section or subdivision corner			
	(12) WELL LOG: Diameter of well below casing	7.7	
	Depth drilled	<u> </u>	
	Formation: Describe by color, character, size of material and s show thickness of audiers and the kind and reture of the ma stratum penstrated, with at least one entry for each change	tructure, and terial in each	
	MATERIAL FRO	-	
		<del></del>	
(3) TYPE OF WORK (check):	BIJE CLAY		
New Well A Deepening Reconditioning Abandon Babandonment, describe material and procedure in Item 18.		1/2	
Danish dingent, deserve pasterns and procedure in Team in.	CLAY AND SILT I	5 75	
(4) PROPOSED USE (check): (5) TYPE OF WELL:	PACKED SAND 6	3 12.5	
Domestic   Industrial   Municipal   Rotary   Driven	SAND SMALL AMOUNT OF BOOKS !	184	
Irrigation [] Test Well [] Other [] Dug [] Bored []	PACKED SAN 18	1/40	
		0 114	
(6) CASING INSTALLED: Threaded (1) Welded	WHITER BEHRING SUD AND	<del></del>	
/2 Diam. from 0 ft. to 2/2 ft Gage 1330	GORVER 1	34 208	
"Diam. fromft. toft. Gage		25 2/2	
" Diam. from ft. to ft. Gage			
(7) PERFORATIONS: Perforated? Xves   No			
Type of periorator used 57AR			
Size of perforations 3/8 in. by /// in.			
4-80 perforations from 194 ft to 200 st.			
perforations from 1k to 1l			
perforations from ft. to ft.			
perforations fromft toft.			
perforations from ft to ft.			
(8) SCREENS: Well screen installed Tes No			
Manufacturer's Name		+	
Slot size Set from ft to ft.	1/2 - 1/2		
Diam Stot size Set from ft to ft.	Work started 4/30 18 6 3 Completed 3//8	106.5	
District Dis	Date well drilling machine moved off of well	1063	
(9) CONSTRUCTION:	(13) PUMP:		
Weil seal-Material used in seal CEMENT CROUT	Manufacturer's Name		
Depth of seed 25 11. Was a packer used?	Туре: Н.Р		
Diameter of well bore to bottom of seal in.			
Were any loose strata comented off? [] Yes   No Depth	Water Well Contractor's Certification:  This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.		
Was a drive shoe used? M Yes 🖸 No			
Was well gravel packed? Tes (No Size of gravel:	PICTURE TO	1	
Gravei placed from ft. to ft.	NAME KJ STRASSER LRILLING (O		
Did any strate contain unusable water? (I Yes ) No	- SE SUBSET LAND I	BET 6. DPA	
Type of water? Depth of strate	Address 8// O DC SUSE/ AARC	**************************************	
Method of sealing strate off	Drilling Machine Operator's License No		
(10) WATER LEVELS:	Real of Straces		
Static level 2.1 ft. below land surface Date 5//8/63	[Signed] (Water Wall Contractor)		
Artesian pressure   De. per square tuch Date	Contractor's License No/ Date	23 1963	
TUSE ADDITIONAL S	HEIPTS IP NECESSARY)	-	
1937 C			

# Household Hazardous Waste

RODUCT	DISPOSAL SUGGESTIONS	SUBSTITUTES AND PRECAUTIONS
erosoks	Best: Put only empty cans in trash.	Instead: Use non-aerosol products. Safe Use: Store in cool place.
	2nd Best: Full or partially full cans to HHW collection site.	Do not burn or put in trash compactor.
atteries: household (mercury, admium, lithium, silver, lead)	Best: HHW collection site.	Instead: Use rechargeable batteries. Avoid battery-operated products.
leach: chlorine	Best: Use up/give away.  2nd Best: Flush small amounts down drain with plenty of water.  Large amounts to HHW collection site.	Instead: Use 1/2 cup borax per washer load, or use hydrogen peroxide in a 3 percent solution. Safe Use: NEVER mix chlorine with ammonia or strong acids like toilet bowl cleaner. The combination produces hazardous fumes.
Octergent cleaners	Best: Use up/give away.  2nd Best: Dilute and wash down sink or take to HHW collection site.	Instead: Use nontoxic alternatives. (See below) Safe Use: Liquid dishwashing detergent is mildest, laundry detergent is moderate, automatic dishwasher detergent is harshest. Use mildest product for your needs.
Drain cleaners	Best: Use up/give away. Put empty container in trash.  2nd Best: Dilute small amounts and wash down sink or take to HHW collection site.	Instead: Use nontoxic alternatives. Do not pour grease down the drain. Pour boiling water down drain weekly. Use plunger or plumber's snake. Pour 1/2 cup baking soda and 1/2 cup vinegar down drain. Let stand 15 minutes. Pour boiling water down drain.
Medicines: unneeded or expired	Best: HHW collection site. 2nd Best: Flush down drain.	Safe Use: Check contents of medicine chest regularly. Old medications may lose their effectiveness, but not their toxicity.
Metal polishes	Best: Use up/give away. 2nd Best: HHW collection site. 3rd Best: Expose to air to evaporate solvents, then put in	Instead: Use nontoxic alternatives. Safe Use: Use only in well-ventilated area. (See below)
	garbage.	
Mothbalis	Best: Use up/give away. 2nd Best: HHW collection site.	Instead: Before storing clean articles, double wrap in tightly sealed plastic bags or in tight container (such as a cedar chest). Safe Use: Don't use in living areas, Air out clothing before use.
Oven cleaner	Best: Use up/give away. 2nd Best: HHW collection site.	Instead: Use a soap/borax combination, followed by a mixture of baking soda and salt for abrasion. Apply with a copper scrubber. Use cleaner without lye. Safe Use: Do not use aerosols; they can explode.
Toilet bowl cleaner	Best: Use up/give away. 2nd Best: Flush with lots of water.	Instead: Use a paste of borax and lemon juice. Scrub with a stiff brush.
Window cleaner	Best: Use up/give away, 2nd Best: HHW collection site.	Instead: Spray on solution of 1/2 water and 1/2 vinegar; wipe di with newspaper or squeegee. Safe Use: Ventilate room.
Wood cleaners, polishes, and waxes	Best: Use up/give away. 2nd Best: HHW collection site.	Instead: Damp mop wood floors with mild vegetable oil soap.  Rub black heel marks with paste of baking soda and water. For furniture, apply olive or almond oil. Let stand for several hours. Polish with a soft dry cloth.
Mildew remover	Best: Use up/give away. 2nd Best: HHW collection site.	Instead: Scrub with a vinegar and salt mixture. Use borax to remove mildew from plastic shower curtains.
PESTICIDES AND Y	ARD PRODUCTS	
Insecticides	Best: If not banned, use according to label instructions. Empty cardboard containers: Dispose of empty box in garbage. Empty glass and plastic containers: Triple rinse with water and apply according to label directions. Wrap in newspaper and put in garbage. If banned: Take to HHW collection site. Do not pour on ground, in a ditch, or down a drain.	Instead: Use nontoxic alternatives. (See below) Safe Use: Do to buy more than you need.
Fertilizers	Best: Use up/give away. Put empty bag in garbage.  2nd Best: If it does not contain pesticides, put in heavy bag, tie and dispose of in garbage. If it contains pesticides, take to HHW collection site.	Instead: Use compost as fertilizer. Use organic fertilizers: bon meal, fish emulsion, manure.
Herbicides	Best: If not banned, use up/give away. Triple rinse empty containers and apply rinse water as directed. Put empty containers in trash.	Instead: Cover garden with plastic or mulch (such as alfalfa h to prevent weed germination. Grow a healthy lawn to out- compete weeds. Pull weeds when they first appear.





# What Is Household Hazardous Waste?

## Why Is It A Problem?

Many products found in your home can pose a health or environmental hazard if you don't dispose of them properly. Anything labeled as toxic, flammable, corrosive, reactive, infectious or radioactive can threaten family health and safety.

According to national estimates, each home contains 3 - 8 gallons of hazardous materials in kitchens, bathrooms, garages and basements. Throwing these materials into the garbage can result in sanitation workers who may be injured by fires or explosions or poisoned by acids.

Hazardous wastes that reach our landfills can leach into the soil, polluting water and threatening all living things.

Substances poured into Oregon's household drains and toilets enter into the sewage treatment process, eventually impacting fish and wildlife. Substances poured on soil or streets or into storm drains are carried to our streams. As little as one pint of solvent can cause measurable fish kills.

## How To Minimize Hazardous Waste In Your Home

- Use safer alternatives.
- Read labels before purchasing. Watch for the words "caution," "warning," and "danger."
   Follow label directions.
- Buy only what you need and will use up.
- If you do have products left over, give them to friends, neighbors, or charitable institutions to use up.

## Handle Hazardous Waste The Recommended Way

Watch For Household Hazardous Waste Collection Days.

Your community may be among those holding household hazardous waste collection events, where residents can bring unused and unwanted hazardous substances to a central location for proper sorting and disposal by local officials and hazardous waste collectors.



For information on collection events, call 1-800-732-9253. For more information, call your garbage hauler, local government solid waste department, or the Oregon Department of Environmental Quality at (503)229-5913, or toll free 1-800-452-4011. If you live in the Portland area, call Metro at (503)234-3000. Ask for household hazardous waste information.



The organizations listed in this brochure assume no responsibility and disclaim any liability for any injury or damage resulting from the use or effect of any product or information specified in this publication.

October 1998

## **Houshold Hazardous Waste**

CHEMICAL HAZARDS IN THE HOME		
PRODUCT	DISPOSAL SUGGESTIONS	SUBSTITUTES & PRECAUTIONS
Aerosols	Best: Put only empty cans in trash.  2 <sup>nd</sup> Best: Take full or partially full cans to HHW collection site.	Instead: Use non-aerosol products. Safe Use: Store in cool place. Do not burn or put in trash compactor.
Batteries: Household (mercury, cadmium, lithium, silver, lead)	Best: Take to HHW collection site.	Instead: Use rechargeable batteries. Avoid battery-operated products.
Bleach: Chlorine	Best: Use up/give away.  2 <sup>nd</sup> Best: Flush small amounts down drain with plenty of water. Take large amounts to HHW collection site.	instead: Use ½ cup borax per washer load, or use hydrogen peroxide in a 3% solution. Safe Use: Never mix chlorine with ammonia or strong acids such as toilet bowl cleaner. The combination produces hazardous fumes.
Detergent Cleaners	Best: Use up/give away.  2 <sup>nd</sup> Best: Dilute and wash down sink or take to HHW collection site.	Instead: Use non-toxic alternatives (see below). Safe Use: Liquid dishwashing detergent is mildest, laundry detergent is moderate, automatic dishwasher detergent is harshest. Use mildest product for your needs.
Drain Cleaners	Best: Use up/give away. Put empty container in trash.  2 <sup>nd</sup> Best: Dilute small amounts and wash down sink or take to HHW	Instead: Use non-toxic alternatives. Do not pour grease down the drain. Pour boiling water down drain weekly. Use

Fertilizers: Plant food	Best: Use up/give away. Put empty bag in garbage.  2nd Best: If it does not contain pesticides, put in heavy bag, tie and dispose of in garbage. If it contains pesticides, take to HHW collection site.	Instead: Use compost as fertilizer. Use organic fertilizers: bone meal, fish emulsion, and manure.	
Herbicides: Weed killers	Best: If not banned, use up/give away. Triple-rinse empty containers and apply rinse water as directed. Put empty containers in trash.  2 <sup>nd</sup> Best: Take to HHW collection site. Do not dispose of in garbage, sewer, septic tank, or storm drain.	Instead: Cover garden with plastic or mulch such as alfalfa hay to prevent weed germination. Grow a healthy lawn to out-compete weeds. Pull weeds when they first appear.	
Insecticides: Insect killers	Best: If not banned, use according to label instructions. Empty cardboard containers, dispose of empty box in garbage. Empty glass and plastic containers. Triple-rinse with water and apply according to label directions. Wrap in newspaper and put in garbage. If banned: Take to HHW collection site. Do not pour on ground, in a ditch, or down a drain.	Instead: Use non-toxic alternatives (see below). Safe Use: Do not buy more than you need.	
Rodenticides: Rat poison	Best: If not banned, use up/give away. Triple-rinse empty containers and apply as directed. Put empty containers in trash.  2 <sup>nd</sup> Best: Take to HHW collection site. Do not dispose of in garbage, sewer, septic tank, or storm drain.	Instead: For mice and rats: Use traps baited with a peanut butter, oatmeal, and honey mixture. Use glue boards or sticky traps. Baits with warfarin are lethal to rodents, yet relatively safe for household use. For moles: Do you really want to kill them? They are voracious insect eaters. Scissor traps are effective. For gophers, use spring traps or box traps. Set in burrow runways.	
CHEMICAL HAZARDS IN THE GARAGE AND HOME WORKSHOP			
PRODUCT	DISPOSAL SUGGESTIONS	SUBSTITUTES & PRECAUTIONS	
Asphalt Roofing Compounds	Best: Use up/give away.  2 <sup>nd</sup> Best: Take to HHW collection site.  3 <sup>rd</sup> Best: Expose open container to air to evaporate solvents, then put in garbage.	Instead: No substitutes. Safe Use: Do not use indoors.	
Auto: Antifreeze	Best: Take to HHW collection site.  2nd Best: Contact sewage treatment plant for permission to flush small amounts down the sewer. Do not	Instead: Propylene glycol-based antifreeze is less toxic than ethylene glycol-based. Check the antifreeze each year to see if it really needs to	

## Cleaners

- Use baking soda, whiting (powdered chalk, sold at hardware and paint stores), or a nonchlorinated scouring powder such as Bon Ami<sup>TM</sup> for general cleaning.
- · Use full-strength vinegar plus salt to remove grease.
- · Use borax to remove spots on counters.
- Use a pumice stick to clean ovens and grills and remove rust from tools.
- · Use half the recommended amount of automatic dishwasher detergent.

#### Recipes For All-Purpose Cleaners:

- 1. ½ cup household ammonia, ½ cup white vinegar, ½ gallon water, ¼ cup baking soda.
- 2. 1 tsp. Liquid soap (castile), 1 tsp. Borax, 1 qt. Water, 1/4 cup vinegar.

## **Polish**

Copper Polish - Use lemon juice and salt.

Aluminum Polish - Inside pan, use 2 tbsp. of cream of tartar to one quart of water. Bring to boil and simmer 10 minutes. Outside pan, use baking soda and scouring pad.

Chrome Polish - Use baking soda or vinegar. To remove scum, try baby oil.

Brass Polish - Apply thick coating of ½ tsp. salt, ½ cup vinegar and enough flour to make a paste. Let set for 15 - 60 minutes. Rinse with water. (Do not use on metal with a lacquer coating.)

Stainless Steel - Use baking soda and a plastic scouring pad.

Silver - Use baking soda and soft sponge or boil silver for 3 minutes with sheet of aluminum foil, 2 inches of water 1 tsp. baking soda, and 1 tsp. salt.

## Insects On Plants:

- Spray with soapy water and rinse after a few minutes.
- Place tobacco on potted plant soil.

#### For Slugs and Snails:

- Sprinkle sawdust, diatomaceous earth, ashes or lime around affected areas.
- · Place bowls of beer around the garden.

## For Ants:

- Use commercial sticky barriers to block ants.
- Sprinkle boric acid on trails and where ants are found in nooks and crannies.

http://www.deq.state.or.us/wmc/solwaste/whatishhw.html



## Fact Sheet #4

Reducing the Risk of Groundwater Contamination by

# Improving Petroleum Product Storage

The purpose of this fact sheet is to raise awareness of the factors involved with and importance of proper petroleum storage. With proper monitoring, installation and maintenance it is possible to avoid problems and significant costs. Worksheet #4 provides a checklist to help you assess the integrity of existing storage facilities.

## Why be concerned?

Proper storage is important. Leakage can create a fire hazard, soil contamination, air pollution, and water contamination. In addition to the health and safety risks, improper storage can be very expensive with fines, liability for clean up, and significant loss of property value.

The Environmental Protection Agency estimates that nearly one out of every four underground storage tanks in the United States may now be leaking. If an underground petroleum tank is more than 20 years old, especially if it's not protected against corrosion, the potential for leaking increases dramatically. Newer tanks and piping can leak, too, especially if they aren't installed properly.

Even a small gasoline leak of one drop per second can result in the release of about 400 gallons of gasoline in one year. Only a few quarts of gasoline in groundwater may be enough to severely pollute a drinking water source. At low levels, fuel contaminants in water cannot be detected by smell or taste, yet the seemingly pure water may be contaminated to the point of affecting human health.

Preventing tank spills and leaks is especially important given the speed that gasoline, diesel fuel, and fuel oil can move through surface layers and into groundwater. Also, vapors from an underground leak which collects in basements, sumps, or other underground structures have the potential to explode or cause health problems. Selling property with an old underground tank may be difficult.

Petroleum fuels contain a number of potentially toxic compounds, including common solvents, such as benzene, toluene and xylene, and additives, such as ethylene dibromide (EDB) and organic lead compounds. EDB is a carcinogen (cancer-causer) in laboratory animals, and benzene is considered a human carcinogen.

Tank regulations vary depending on the use of the tank, its size, and location above or below ground. Regardless of whether or not your tank is regulated, significant spills need to be reported to the Department of Environmental Quality (DEQ) and can be costly. Spills less than 42 gallons and cleaned up within 24 hours do not need to be reported. Larger spills, smaller spills that are not cleaned up within 24 hours, and any petroleum that remains in soil or water must be reported to DEQ.

For glossary, see page 2 of Worksheet #4.



Along with maintaining adequate distance from your drinking water well, choose a location for a new tank based on the following considerations:

- Soil characteristics. Highly corrosive clays, wet soils, cinders, and acidic (low PH) soils can significantly speed up the rate of corrosion of underground metal tanks and piping. Using clean backfill during installation can decrease the negative effects of surrounding soils.
- Soil stability. Assess the ability of the underlying soil to support both underground and above-ground tanks. For special tank locations, such as hillsides, be sure to properly anchor and hold tanks in place. Be sure that pipes cannot twist or break if the tank is bumped or disturbed.
- Current and previous land use. Sites that contain abandoned pipes and tanks, agricultural drainage tiles or waste materials pose special installation problems.
   Any metal already in the ground at your chosen site will increase corrosion rates for the new tank.
- Traffic. Assess traffic patterns around the tank. Determine whether the location of
  the tank or dispenser will block movement of vehicles during refueling or cause
  special problems if any work needs to be done on the tank. Protect piping from
  collisions with vehicles.

## 2. Tank design and installation

Whenever you install a fuel storage tank, carefully follow the manufacturer's recommended practices for installation. Proper installation is one sure way to minimize the leaking potential of the tank or the piping connected to it. Even scratches in a metal tank caused by careless installation can increase corrosion and tank deterioration.

All underground tanks with more than 1,100 gallon capacity (except heating oil for use on premises), must be registered with the Oregon Department of Environmental Quality. Above-ground tanks greater than 1,000 gallons are regulated by the Fire Marshal. It is illegal to reuse an underground tank above ground.

## **Underground tanks**

All new underground petroleum storage tanks and related piping must be constructed of non-metallic materials, such as fiberglass, or have corrosion protection. Methods of corrosion protection include interior liners and "sacrificial anodes."

A sacrificial anode is a special material connected to the tank with a greater tendency to corrode than the tank material. The anode, when combined with a tank coating (either fiberglass or epoxy), will typically protect the tank for up to 30 years. Interior liners are made of noncorrosive synthetic materials and can also be effective in protecting metal tanks.

Use of spill protection and overfill protection equipment is highly recommended. Spill protection typically consists of a catch basin for collecting spills when the tank is filled. Overfill protection is a warning buzzer or an automatic shutoff. Spill and overfill protection are important; they can prevent a number of small releases over a long period of time which in many cases have been found to result in significant pollution.

## **Above-ground tanks**

State regulations for above-ground tank installation seek to reduce the potential for both pollution and fire. Requirements include 1) enclosing the tank within a secure 6-foot fence or well-ventilated building constructed of noncombustible material; and 2) constructing a fire wall between the fuel dispensing area and the tank.

Measuring tank inventories is an inexpensive and easy way to help detect leaks. Leakage is apparent when there is any decrease in level over time without any withdrawal of fuel or an increase in water in the tank. While inventory measurement will not detect very small leaks, it will at least provide a warning that further investigation may be necessary.

If you use a measuring stick to measure tank liquid level, be sure that the stick doesn't puncture or damage the bottom of the tank.

The closer the tank is to a drinking water well or other water supply, the more important it is to ensure that an adequate leak-detection system is in place.

## Leaks and spills

If you find a leak or spill from any tank—whether it be above or below ground, or even a vehicle-mounted tank—state law requires that you notify your DEQ regional office within 24 hours or call Emergency Management at 1 (800) 452-0311. Take whatever actions are necessary to remedy the problem, and follow the recommendations you receive when you report the spill or leak.

## 4. Tank closure

Tanks no longer in use can cause problems for owners and operators many years later. They will continue to corrode and, if they still contain gas or oil, will likely contaminate groundwater.

Try to determine the location of any unused tanks on your property. Also, find out whether the tanks still hold product or have holes. These tanks must be safely emptied and either filled with inert material (typically sand or cement) or pulled from the ground and disposed in a landfill or at a scrap dealer.

State law requires that only the tank owner or a licensed service provider can legally pull a regulated underground storage tank. Always notify your local fire department and DEQ at least 30 days before you have a tank pulled, to ensure that precautions are taken to prevent an explosion or other problem. Improper tank closures have caused deaths.

If you are concerned that your unused tank has been leaking, consult an environmental engineer or the DEO to determine if further investigation is warranted.

## **Contacts and References**

## Who to call about...

To request additional information on tank registration, reporting closure, changes in tank ownership, EPA regulations, petroleum product storage, tank testing methods, and suppliers call:

Department of Environmental Quality, (503) 229-5733 Underground Storage Tank Helpline, 1 (800) 742-7878

To report petroleum product spills contact the appropriate regional office.

Central Region (Bend): (503) 388-6146 Eastern Region (Pendleton): (503) 276-4063 Northwest Region (Portland): (503) 229-6385 Southwest Region (Medford): (503) 776-6010 Willamette Valley (Salem): (503) 378-8240

## Notes

7



## Fact Sheet #5

Reducing the Risk of Groundwater Contamination from

## Improving Hazardous Waste Management

Two key steps to minimizing the pollution potential on your homestead from farm, household, and shed wastes are to minimize the amount of wastes and recycle what is generated when possible.

Some hazardous materials, such as lubricating oils or solvents for cleaning metal parts, are an unavoidable part of rural life. Take time, though, to examine activities that involve use of hazardous materials, to make sure that you really need all the products you are using. Keep in mind that hazardous waste generated from farm business activities must be managed in accordance with state and federal rules.

When you are certain that you are purchasing and using only essential products, carefully consider how to use the products safely, recycle or reuse them when possible, and dispose of remaining products in a way that will not pose a risk to human health, the environment, or your drinking water. A few simple management principles apply in every situation:

- Use hazardous products away from your well (150 feet or more), even when all your spills and drips will be contained.
- Return excess product, spills or drips to the original activity. For example, reuse filtered waste antifreeze as water in other radiators; contain oil or grease drips and use for future lubrication needs; dispose of pesticide container rinse water by spreading on fields at the proper application rate for the pesticide.
- Contain any unusable wastes, spills, and drips for appropriate disposal.

## 1. Farm and household trash

This category of potentially hazardous substances includes:

- Ash and sludge from burned farm home and garage trash and waste oil
- Plastic wraps and containers
- **Personal care products**, such as spot removers; dry cleaning fluids; mothballs; and shoe and leather polishes
- Hobby products, such as pesticides used in pet care; artist paints and solvents; undiluted photography and swimming pool chemicals; strong acids

For glossary, see page 2 of Worksheet #5. • Home cleaning and repair products, such as air fresheners and pest strips; furniture and wood polishes and waxes; lead-based paint; other paints; stains and finishes; paint and finish preparation products; wood-preserving products.



DREGON STATE UNIVERSITY EXTENSION SERVICE

2,3,7,8-TCDD dioxin due to burning household trash in a burn barrel are 7,000 times the amount formed during trash burning in a municipal incinerator. Ash and sludge resulting from on-farm burning also contain significant amounts of such toxic substances as lead, cadmium, chromium, dioxin, and furan compounds.

Open burning of household garbage, wet combustible rubbish, oily substances, asphalt, plastic, or rubber products is a pollution and health threat. Household trash can be burned only in incinerators that meet strict state air quality regulations.

Burn waste oil, if uncontaminated with other solvents, in a furnace designed for burning oil as a fuel. Contain and dispose of any resulting ash or sludge in a licensed landfill. Waste contaminated with solvents may be a hazardous waste and must be properly managed if it is.

There are no specific design standards available to adequately protect the environment from air pollution or groundwater contamination resulting from burning and ash disposal of wet trash, plastic product containers, waste oil, and other hazardous products used on the farm.

The typical operation at open burning sites, burn barrels and domestic incinerators is not adequate for burning at the temperatures required to eliminate the production of toxic substances such as dioxin compounds, chlorine products, solvent vapors, and a residue of heavy metals.

While burning may destroy some toxic substances, others will become concentrated in the smoke, ash and sludge resulting from burning wastes. Repeated burning on the same location under similar weather conditions may cause the toxic substances in smoke (especially heavy metals such as lead, mercury and arsenic) to accumulate in a concentrated area around the burn barrel. These substances, as well as the toxic substances in ash and sludge disposed of through land spreading or burial, could also result in groundwater contamination.

Open burning of dry combustibles in small amounts is appropriate to the farm situation where it is permitted by local and state laws. Dry combustibles include clean, untreated, unpainted wood, paper and cardboard. Burn dry combustibles outdoors or in a well-ventilated area to minimize adverse health effects from smoke.

Empty pesticide bags should not be burned. If there is no landfill option, and if local ordinances and state laws allow burning, burn them well away from people, pets and farm stock, because air will carry pesticide particles from the fire. Burn in small quantities and only on fields where the pesticide was applied.

## 2. Building and wood maintenance cleaners and chemicals

This category of potentially hazardous substances includes:

- Solvent-based building and wood cleaners, including wood polishes and products for wood floor and panel cleaning. (Detergent-based cleaners do not pose a threat to groundwater.)
- Equipment maintenance products, such as stripping and finishing products, stains and paints, products for brush or spray gun cleaning, and adhesives such as glues and caulk. Also includes solvents as used in degreasers and paint thinners; stains and varnishes; and wood-preservative compounds.

Disposing of these products by dumping them on the ground or in a septic system could allow hazardous constituents to leach and contaminate groundwater. When used for the farm business, on-farm disposal of any of these products is illegal. Avoid on-farm disposal of these liquids whenever possible.

## 4. Vehicle maintenance chemicals

This category of potentially hazardous substances includes:

- Vehicle maintenance products, such as antifreeze, oil and grease
- Solvents for oil and grease removal and disposal
- Engine, parts and equipment cleaners
- Lubricants
- Rust removers
- Paints and paint preparation products
- · Brush or spray gun cleaners
- Lead acid battery replacement

Solvents used for cleaning metal parts, oils and fuels include toxic ingredients. Fortunately, good recycling opportunities exist for both solvents and waste oil. Consider contracting with a solvent recycler to rent a parts washer. Old solvents are picked up by the recycler and you are provided with clean solvent. To recycle waste oil, take it to an oil recycling tank. There is usually at least one in every county, and often more.

Solid and hazardous waste laws prohibit land spreading of waste oil for dust or weed suppression. Waste oil can be burned in a waste oil burner if the oil has not been contaminated with solvents or other materials. The waste oil furnace should be located according to building code requirements.

Use up old fuels (leftover quantity stored for several months) whenever possible. Dilute one part old fuel with five parts new fuel to protect your engine.

If you cannot recycle your antifreeze, it may be diluted and sewered in a municipal sewer system that will accept the waste. Contact a nearby city to find the closest acceptable location. Do not dump antifreeze into your own drain if you have a septic tank. It may kill the organisms that the system depends on to break down wastes in the tank.

If you find yourself doing a lot of painting of vehicles or other farm equipment, use a paint booth. Some booths are structured to collect excess paint and spray gun cleaners for later disposal with a solvent recycler.

The design and location of the equipment maintenance area is important. Some farmers use a grease pit. Others allow drips and spills to collect on the shed floor. In both cases, the area is generally "cleaned" through periodic flushing.

If you prefer to keep your shed floor clean through flushing, you will need a system to contain waste liquids so that they will not be flushed onto soil. Flushing to a **paved** outdoor area is an acceptable method of disposal. Using sawdust to soak up drips and spills is another common practice. Evaporate volatile chemicals in a protected outdoor area with good ventilation and take the sawdust to a licensed landfill. Burning any of these substances can produce air emission deposits that have the potential to contaminate groundwater.

Evaporation of liquid wastes prior to flushing may take care of the problem of contaminated runoff, but it is not recommended due to air quality concerns and the potential for liquids to seep through cracks in floors. Flushing is one of many past waste management methods that should be re-evaluated to determine whether it is worth the risks of contamination to the environment.

## **Contacts and References**

## Who to call about...

#### Health concerns

Oregon Division of Health, 800 N.E. Oregon Street, Portland, OR 97232, (503) 731-4317.

## A specific product

Contact the company that makes the product. The company's phone number is frequently on the label. Or, call the Chemical Referral Center, at 1 (800) CMA-8200. Sponsored by the Chemical Manufacturers' Association, this number will refer you to a specific manufacturer for answers about product questions.

## Identification and disposal of hazardous wastes

Oregon Department of Environmental Quality regional offices:

Central Region (Bend): (503) 388-6146 Eastern Region (Pendleton): (503) 276-4063 Northwest Region (Portland): (503) 229-6385 Southwest Region (Medford): (503) 776-6010 Willamette Valley (Salem): (503) 378-8240

#### Hazardous waste contractors

To obtain a publication on how to select a hazardous waste contractor, contact your regional DEQ office (listed above).

## Chemicals and their disposal in your county

Your county Extension agent or your regional DEQ office (listed above)

#### Human poisoning

Your physician, or the Poison Control Center in the nearest city: 1 (800) 452-7165

## What to read about...

Managing Used Oil in Business and in Government

Managing Waste Pesticide Residues and Empty Pesticide Containers for Agricultural and Silvicultural Pest Control Operations

These publications are available from the Oregon Department of Environmental Quality, 811 S.W. Sixth Avenue, Portland, OR 97204, (503) 229-5263, or from your regional DEQ office.



## Fact Sheet #6

## Reducing the Risk of Groundwater Contamination by Improving Household Wastewater Treatment

A properly installed and maintained system for treating and disposing of household wastewater will minimize the impact of that system on groundwater and surface water. State and local codes specify how wastewater systems must be designed, installed, and maintained. For example, see Oregon Administrative Rules (OAR) Chapter 340, Division 71.

At a minimum, follow the codes. But also consider whether the minimum requirement is sufficient for your site.

## Septic tank/soil absorption system: The most common system

The most common form of onsite wastewater treatment is a septic tank/soil absorption system. In this system, wastewater flows from the household pipes into an underground septic tank.

- There the waste components separate—the heavier solids (sludge) settling to the bottom, and the grease and fatty solids (scum) floating to the top.
- Bacteria partially decompose and liquefy the solids.
- Baffles are placed in the tank to provide maximum retention of solids, prevent inlet and outlet plugging, and prevent rapid flow of wastewater through the tank.
- The more liquid portion (effluent) flows through an outlet to the soil absorption field.
- The absorption field is usually a series of parallel trenches (fingers), each containing a distribution pipe or tile embedded in drainfield gravel or rock.
- The effluent leaks out through holes in the pipe or seams between tile sections, then down through the drainfield gravel or rock and into the soil.
- For glossary, see page 2 of Worksheet #6.
- The soil filters out remaining minute solids and pathogens (disease-producing microorganisms), and dissolved substances slowly percolate down to the watertable.



## 1. Quantity of wastewater

Strategy: Minimize the volume of household wastewater

Reducing the volume of wastewater entering the treatment system is important because less flow (volume) means better treatment, longer system life, and less chance of overflow. For holding tanks, less volume reduces costs but increases the number of times the tank has to be emptied.

Reducing the volume of water entering the system will improve the treatment by increasing the time the waste spends in the system, thus providing more time for settling, aeration, and soil contact.

The quantity of water used depends upon the number of people using the dwelling, how water is used, and maintenance of the water supply system. Average water use in rural households is 50-75 gallons per person per day. With low-use fixtures and individual awareness and concern, a reduction to fewer than 25 gallons per person per day is possible. However, even conservative use by several people may exceed the capacity of the wastewater treatment system.

Consider the following ways to minimize water use:

- Eliminate non-functional uses, such as flushing toilets to dispose of tissues or other wastes that should be handled as solid waste. Turn off water between uses, fix plumbing fixture leaks, and try to eliminate sources of clear water and infiltration into the system (e.g., divert roof drains away from the soil absorption field.)
- Consider which actions use the most water. Toilet flushing usually ranks highest.
  Low-flow models could decrease water use by more than half. In the United States,
  35-40 percent of the population has plumbing codes that require 1.5-gallon-or-less
  toilets on all new construction. Composting toilets allow even greater reductions,
  but they can present other waste disposal challenges. If interested in installing a
  composting toilet, contact the Oregon Department of Environmental Quality
  (DEQ) for pertinent regulations.
- Bathing and laundry are next in order of water use. For bathing, consider such reduction options as installing low-flow or controlled-flow showerheads, which give good cleansing with less water; taking shorter showers; and taking "wetdown-soap-up-without-water-then-rinse" showers.
- For laundry, run only full loads. Front-loading washers use much less water. If you
  must run small loads, be sure to use the reduced water level setting. Avoid using
  the permanent press cycle as it uses more water than regular or delicate cycles. If
  you have adequate room and are willing to change how you do laundry, explore a
  suds saver attachment for your washer.
- Modern efficient plumbing fixtures, including 0.5 to 1.5-gallon toilets, 0.5-2.0 gallons per minute (gpm) showerheads, faucets of 1.5 gpm or less, and front-loading washing machines of 20 to 27 gallons per 10-to-12-pound dry load offer the potential of substantial reduction in residential water use and wastewater generation. These reductions have commonly amounted to between 30 and 70 percent of total in-house water use. (See Figure 2.)
- In hard water areas, the water softener may use a significant amount of water. Proper adjustment and timing of the softener's flushing mechanism can reduce excessive water use. Spent salts should not be discharged into the septic system.
- Being aware of how your family can reduce its water use is as important as the use of water conservation devices.

• Nutrients. Nitrogen from human wastes and phosphorus from detergents and some chemical water conditioners are the most notable. Nitrate-nitrogen is a common groundwater contaminant, and phosphorus over-fertilizes surface water.

Consider the following ways to improve wastewater quality:

**Note:** Following these steps carefully is the key to a "healthy" septic system. Septic tank additives do not significantly help, and some can even be harmful.

- Minimize use of the garbage disposal unit. Garbage disposal use contributes a large load of suspended solids and organic matter to wastewater, as well as using additional water. They should not be used in homes with septic systems unless the septic tank is increased in size.
- Do not put items down drains that may clog septic tanks (fats, grease, coffee grounds, paper towels, sanitary napkins, tampons, disposable diapers, cigarettes, condoms).
- Do not put toxic substances in drains that might end up in the groundwater, such ash, solvents, degreasers, acids, oils, paints, disinfectants, and pesticides. (This does not include using bleach to disinfect laundry or to wash clothing worn for pesticide applications.) Normal use of household cleaning products will not adversely affect the septic system.
- Do not use chemicals to clean or "sweeten" your system. They may interfere with the biological action in the tank, clog the drain field by flushing sludge and scum into the field, or add toxic chemicals to groundwater.

## 3. Collection of wastewater

Strategy: Collect all wastes that need treatment. Minimize loss of untreated waste. Exclude from the treatment system water that doesn't need treatment or disposal.

Leaking pipes or treatment tanks ("leakage losses") can allow wastewater to return to the local water supply without adequate treatment. Infiltration of clear water overloads the system and dilutes the wastes. Don't allow water that doesn't need treatment (basement floor drain sumps, foundation drains, infiltration of rain water, roof drainage) to add to your waste volume. Divert clear water, which doesn't require treatment, away from house, well and wastewater treatment system. Plumb the water softener so that backwashing water does not enter the septic system. (This water is very salty.)

## 4. System design

Septic tanks retain most of the suspended solids (sludge and scum) from wastewater. In the tank, bacteria digest and compact the sludge. The partially treated water moves on to additional treatment or disposal (for example, in a soil absorption field.)

Design and construction of septic tanks influence their water tightness and effectiveness of retaining sludge and scum. Multiple tanks or chambers in series can improve sludge and scum removal. Gas deflectors and filter screens or inclined-plate settling units help to minimize solids carryover. Tanks should be sized to accommodate at least 24 hours of wastewater flow, while still allowing for sludge and scum retention. Pumping the tank before it is more than one-third filled with scum and sludge improves functioning of the system. When the tank is pumped, you should also have the baffles checked and check for tank leaks.

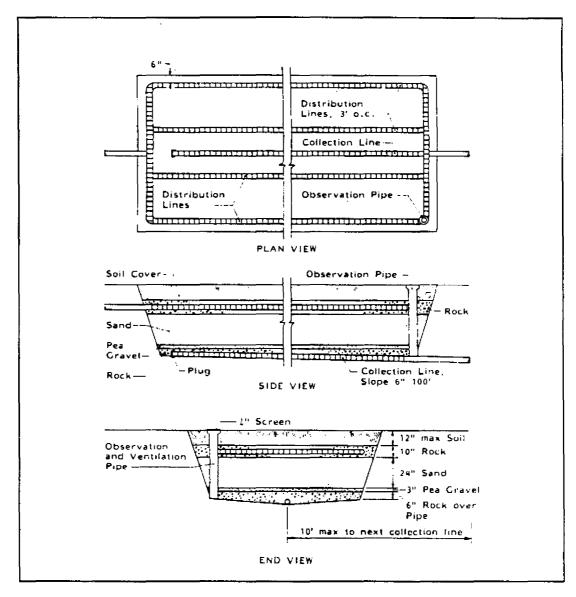


Figure 4: Buried sand filter. Source: Onsite Domestic Sewage Handbook, MWPS-24, Midwest Plan Service, 1982.

Nitrogen removal can be achieved through denitrification (conversion of nitrate to nitrogen gas) or ion exchange. Denitrification requires anaerobic conditions in the presence of more decomposable organic matter for bacteria to reduce nitrate to nitrogen gas for removal from wastewater. Denitrification and ion exchange processes are not used extensively at this time, as they are quite expensive to install, operate, and maintain.

Disinfection systems kill disease-causing microorganisms in wastewater and are used where discharge to surface water is permitted. Chlorine, iodine ozone, and ultraviolet light systems are available for treatment of good quality effluent, such as those from properly functioning aerobic units and sand filters.

Disinfection of holding tank waste prior to land spreading has been studied, but it is not in common use. Disinfection with lime is feasible.

## 7. Assistance with failing systems or new designs

If you suspect your household wastewater treatment system is backing up or your distribution system is clogged, first contact your plumber or septic system installer, who may have suggestions for extending the life of your system. Contact the Department of Environmental Quality (DEQ) or its authorized agent in your area for permits to repair or replace your wastewater treatment system.

- Do not use septic tank cleaners that contain degreasing solvents like TCE. They can contaminate groundwater.
- Do not place more soil over a surfacing soil absorption field; this does not fix the system, and it will soon surface again.
- Do not just pipe the sewage to the road ditch, storm sewer, stream or farm drain tile; this pollutes the water and creates a health hazard.
- Do not run the sewage into a sink hole or drainage well; this pollutes the groundwater.
- Do not wait for the system to fail before pumping the septic tank. Once a system fails, it is too late to pump the tank. Develop a regular tank maintenance and pumping schedule.

A properly designed, constructed and maintained septic system can effectively treat wastewater for many years. For more information on septic systems, contact your County Extension Agent, the DEQ or its authorized agents.

## **Contacts and References**

## Who to call about...

## Household wastewater treatment and local regulations

Contact the Oregon Department of Environmental Quality (toll free number) 1-800-452-4011, or their authorized agent for your county. Refer to the phone number following your county:

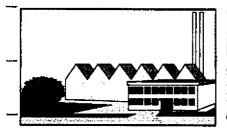
Baker (276-4063) Lane (687-3951) Benton (757-6841) Lincoln (265-4192) Clackamas (655-8521) Linn (967-3821) Clatsop (325-8660) Malheur (473-5186) Columbia (397-1501) Marion (588-5147) Coos (269-2721) Morrow (276-4063) Crook (447-8155) Multnomah (823-7247 Curry (247-7011 x229) or 823-7303) Deschutes (388-6575) Polk (623-9237) Douglas (440-3338) Sherman (296-4636) Gilliam (276-4063) Tillamook (842-3409) Umatilla (276-4063) Grant (276-4063) Union (276-4063) Harney (388-6146) Wallowa (276-4063) Hood River (386-1115) Wasco (296-4636) Jackson (776-7556) Jefferson (475-4456) Washington (648-8722) Josephine (471-2850) Wheeler (276-4063) Yamhill (434-7516) Klamath (883-1122) Lake (388-6146)

## Publications available from...

- 1. U.S. Environment Protection Agency, 401 M Street SW, Washington, DC 20460.
- 2. Midwest Plan Service Publications may be ordered from Bioresource Engineering Department, Oregon State University, Gilmore Hall 116, Corvallis, OR 97331-3906.
- 3. West Virginia University, P.O. Box 6064, Morgantown, WV 26506-6064, or call 1 (800) 624-8301.
- 4. University of Wisconsin-Madison, 1450 Linden Drive, Madison, WI 53706, (608) 262-0853 or (608) 262-6968.
- 5. Your county Extension office or directly from Publications Orders, Agricultural Communications, Oregon State University, Administrative Services A422, Corvallis, OR 97331-2119, (503) 737-2513. There may be charges for publications.



# DRINKING WATER PROTECTION FACT SHEET FOR BUSINESS & INDUSTRIAL OPERATION



he Oregon business community is a vital partner in the effort to protect Oregon's drinking water resources. The voluntary effort of all businesses, large or small, to incorporate sound management practices in their daily activities helps preserve and protect groundwater and surface water resources for all Oregonians.



## What Can Business and Industry Do To Help Protect Drinking Water?



## Participate In Existing Pollution Prevention And Waste Reduction Activities

To help protect drinking water in your community, businesses could begin by utilizing the existing resources and programs, which can reduce the risks of drinking water contamination. Oregon Department of Environmental Quality (DEQ) has several — established programs that can be extremely useful in those efforts such as the pollution prevention program and the Toxics Use Reduction Program. These programs also have the added benefit of:

Helping you to reduce operating and compliance costs;

Saving you money by reducing product use or disposal amounts;

Reducing liabilities associated with spills or releases to the environment; and

**Promoting the health** and safety of your workers by eliminating, reducing, or controlling wastes from your activities.



**Pollution Prevention:** Pollution prevention is any activity that avoids, reduces, or eliminates the creation of pollutants or wastes at the source. It includes practices that reduce the use of hazardous and non-hazardous materials, energy, water, or other resources. It also encourages more efficient use and protection of natural resources. Any reduction in the amount of hazardous material stored or used at the local business is a direct reduction in the risks posed by that potential contaminant to our water supply. The relatively simple activities listed to the left are a good place to start. You can find out more about additional opportunities for pollution prevention, which are more specific to vour business, by contacting DEQ (see "Resources..." on page 4).

#### Top P2 Opportunities for Drinking Water Protection

- Reduce or Eliminate the Use of Hazardous Chemicals: Evaluate your options for eliminating toxic chemical use or using the least hazardous materials in the manufacturing process. Avoid the use of chlorinated solvents / cleaners whenever possible.
- Housekeeping and Spill Response: Good housekeeping practices, such as keeping containers closed while not in use, and replacing manual transfer operations with pumps or spigots can reduce spills and leaks. Have a spill kit readily available so spills can be cleaned up quickly and properly. Post emergency numbers in a visible location.
- Maintenance: Properly maintaining equipment can reduce waste from leaks or equipment breakdowns during production runs. Good maintenance programs may include regular equipment inspection, changing worn out parts, regularly replacing scals and gaskets, repairing leaks as they occur, and following manufacturer's suggested maintenance schedules.
  - **System Assessment:** Conduct an assessment of current operations to identify ways to improve process equipment, substitute raw materials, or reformulate products to save energy, prevent pollution, and enhance business competitiveness.

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# General Best Management Practices

	* Eliminate floor drains discharges to the ground, septic systems (except in sanitary facilities), storm sewers, or to any surface water body from any location in the facility
	If no floor drains are installed, all discharges to the floor should be collected, contained, and disposed of by an appropriate waste hauter in accordance with federal and state requirements.
Floor Drains	Floor drains in sanitary facilities must either discharge to a septic system, a municipal sanitary sewer, or a holding tank which is periodically pumped out.
	* Floor drains in work areas can either be connected to a holding tank with a gravity discharge pipe, or to a collection sump which discharges to a holding tank.
Dry Wells	* Dry wells should be eliminated in ALL cases unless they receive ONLY CLEAN WATER DISCHARGES which meets all established Maximum Contaminant Levels (MCLs) promulgated under the Safe Drinking Water Act and other state and local standards for drinking water, and is in compliance with any other state and local requirements
<u> </u>	<ul> <li>Floor surfaces in work areas and chemical storage areas should be sealed with an impermeable material resistant to acids, caustics, solvents, oits, or any other substance which may be used or generated at the facility. Seeled floors are easier to clean without the use of solvents.</li> </ul>
Ficors	* Work area floors should be pitched to appropriate floor drains. If floor drains are not used, or if they are located close to entrance ways, then berms should be constructed along the full width of entrances to prevent storm water runoff from entering the building.
	* Berms should also be used to isolate floor drains from spill-prone areas.
	* Loading and unloading of materials and waste should be done within an enclosed or roofed area with secondary containment and leolated from floor drains to prevent potential splits from contaminating storm water or discharging to the ground.
Storage Facilities	* Tanks and associated appurtenances should be tested periodically for structural integrity.
	Storage areas for new and weste materials should be permanently roofed, completely confined within secondary confinement berms, leolated from floor drains, have sealed surfaces, and should not be ac- cessible to unauthorized personnel.
fater Conservation	* Flow restrictions and low-flow faucets for sinks and spray nozzles should be installed to minimize hydraulic loading to subsurface disposal systems.
	* Storm water contact with materials and wastes must be avoided to the greatest extent possible. Storage of materials and wastes should be isolated in roofed or enclosed areas to prevent contact with precipitation.
Storm Water	Uncovered storage areas should have a separate storm water collection system which discharges to a tank.
Management	Storm water from building roofs may discharge to the ground. However, if solvent distillation equipment or vapor degreasing is used, with a vent that exhausts to the roof, then roof leaders may become cross contaminated with solvent. These potential sources of cross contamination must be investigated and eliminated.
ross-Connections	* Cross-connections such as sanitary discharges to storm sewers; storm water discharges to sanitary sewers, or floor drain discharges to storm sewer systems, should be identified and eliminated.
	* Consolidate waste-generating operations and physically segregate them from other operations. They should preferably be located within a confinement area with sealed floors and with no direct access to outside the facility. This reduces the total work area exposed to solvents, facilitates waste stream segregation and efficient material and waste handling, and minimizes cross combination with other operations and potential pathways for release into the environment.
Work Arees	* Waste collection stations should be provided throughout work areas for the accumulation of spent chemicals, solled rags, etc. Each station should have labeled containers for each type of waste fluid. This provides safe interim storage of wastes, reduces frequent handling of small quantities of wastes to storage areas, and minimizes the overall risk of a release into the environment.
	<ul> <li>New Solvent can be supplied by dedicated feed lines or dispensers to minimize handling of materials. These feed lines must default to a closed setting to prevent unmonitored release of materials.</li> </ul>
	* Use emergency spill kits and equipment. Locate them at storage areas, loading and unloading areas, dispensing areas, and work areas.
	* Clean spills promptly.
	* Use recyclable rags or absorbent spill pads to clean up minor spills, and dispose of these materials properly.
Spili Control	* Clean large spills with a wet vacuum, squeegee and dust pan, absorbent pads, or brooms. Dispose of all clean-up materials properly.
	* Minimize the use of disposable granular or powder-absorbents.
	* Spilled materials should be neutralized as prescribed in Material Safety Data Sheets (MSDS), collected handled, and disposed of in accordance with federal, state, and local regulations.
	Use shake-proof and earthquake-proof containers and storage facilities to reduce spill potential.      Employee supposes of the employeements and economic benefits of waste makening and political.
Employee Training	* Employee awareness of the environmental and economic benefits of waste reduction and pollution prevention, and the adverse consequences of ignoring them, can also facilitate employee participation.

# SOURCE WATER ASSESSMENT PROGRAM: TRANSIENT NONCOMMUNITY WATER SYSTEMS

# Oregon Health Division Drinking Water Program

The 1986 Amendments to the Safe Drinking Water Act required states to develop Wellhead Protection Programs to encourage public water systems using groundwater, i.e., wells or springs, to protect their resource from potential contamination. The steps that were developed in Oregon's EPA-approved program included (1) the delineation or identification of the drinking water protection area around the well or spring, (2) identification of potential contaminant sources within that area, and (3) the development, by the local community, of management strategies to reduce the risk of contamination from those sources. Collecting the necessary information to put together a plan was considered the responsibility of the community or water system.

The 1996 Amendments to the Safe Drinking Water Act went a step further by requiring states to conduct Source Water Assessments for all public water systems, including both groundwater and—surface water sources. Under the Source Water Assessment program, for each transient noncommunity water system, Oregon Health Division (OHD) will identify an area around the well, spring or intake, called the drinking water outreach area, in which special precautions should be—taken to protect the water supply. This area is referred to as the drinking water protection outreach area because it has been demonstrated that education and raising of awareness is the most important tool in protecting drinking water. In addition to identifying the outreach area, OHD will—assist in the inventory of that area of potential sources of microbial and nitrate contamination, and the identification of factors that make the system susceptible to these contaminants. This service will be provided at no cost to the water system.

This Fact Sheet provides general information about groundwater and surface water sources, and briefly describes the identification of the outreach area, the inventory process, and the identification of factors or conditions that contribute to the susceptibility of the water system's drinking water to contamination.

# Sources of Drinking Water: Groundwater

**Groundwater Occurrence.** Groundwater occurs in the open spaces and fractures in the geologic naterials, e.g., sediment and bedrock, that occur beneath the surface. Aquifers are any geologic material where the open spaces are filled with water (i.e., it is saturated) and through which groundwater can move at a rate and quantity sufficient to supply a well. In Oregon, typical aquifers nelude alluvial sediments (river sands and gravels), basalt aquifers and fractured bedrock.

Origin of Groundwater. Groundwater is part of the global hydrologic cycle that controls the listribution of water on Earth. It originates through the infiltration of precipitation that falls on the rand surface and sinks through the soil. For shallow wells (<100 feet), the recharge area is often the immediate vicinity around the well. For deeper aquifers, the recharge area may be several miles or nore away. Obviously, if the infiltrating water encounters any contaminant, at or below the surface, some of the contaminant may be dissolved and carried downward.

iroundwater Movement. The water table is the upper surface of the saturated zone. Groundwater ends to move from areas where the water table is high to where it is low. How fast groundwater moves depends on the permeability of the aquifer and the slope of the water table. Pumping wells an have an influence on the direction and rate of groundwater movement because the draw down hey produce changes the shape and slope of the water table.

## Facts About Groundwater:

Over 70 percent of Oregonians depend in part on groundwater for their source of drinking water.

On an average day, Oregonians use 1,000,000,000 (one billion) gallons of groundwater!



What is groundwater? Groundwater is water that occurs in the open spaces between soil, rock and sediment particles beneath the Earth's surface. Groundwater does not occur as underground lakes or rivers.

What is an aquifer? Any geologic material, such as sand and gravel or fractured rock, that is below the surface, is filled with water and can provide water to wells. The top of the aquifer is the water table.

Where does groundwater come from? Groundwater comes from precipitation that falls on the ground and then sinks below the surface to the aquifer.

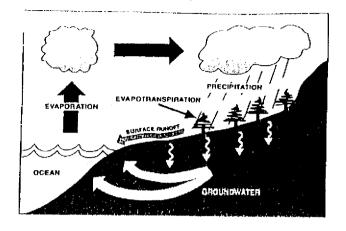
How can groundwater become polluted? What ever is going on at or just below the ground surface has the <u>potential</u> of contaminating groundwater because precipitation has to travel through it on its way to the water table. Everyone can pollute groundwater, not just industry, business and agriculture. Improper use, storage or disposal of chemicals, including household cleaners, lawn and garden fertilizers and pesticides, can lead to groundwater pollution.

Can we clean up contaminated groundwater? In some cases yes, however because many contaminants tend to cling to soil particles in the aquifer it is very difficult and expensive to remove them. Once in the ground, some contaminants may contribute to groundwater pollution for a long time.

How can we protect groundwater? You can be careful how you use chemicals. Try to reduce chemical usage and recycle or reuse items. Dispose of chemicals properly. Tell your family and friends how important groundwater is. Help them understand where groundwater comes from, how it can become polluted, and how it can be protected by careful and responsible use of chemicals.

# What Is Groundwater and Why Is It Important?

- Groundwater is water that occurs below the ground and is brought to the surface through wells.
- Groundwater comes from precipitation that falls on the ground and sinks below the surface to the aquifer.
- Groundwater does not occur in underground rivers or lakes. It occurs in the open spaces between soil, sediment and rock fragments below the surface.
- Groundwater is part of the hydraulic cycle where water moves from the oceans through the atmosphere to the land surface where it is used by plants and animals, forms our streams and sinks into the ground to become groundwater.
- Over 70% of Oregonians depend at least in part on groundwater as a source of their drinking water.
- Oregonians use over 700,000,000 gallons of groundwater every day!



# How Can Groundwater Become Contaminated?

- Because groundwater comes from precipitation sinking into the ground, whatever is going on at or just below the surface has the potential of contaminating the water as it moves downward.
- Everyone is a potential polluter, not just industry, business and agriculture.
- Improper use, storage, or disposal of chemicals, including household cleaners, pesticides, fuel and oil can lead to groundwater pollution.

# Everyone Shares Responsibility in Protecting Groundwater Quality.

#### What can individuals do?

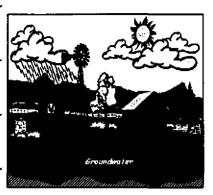
- Be careful how you use chemicals.
   Follow the instructions on the label.
   Try to reduce chemical usage and recycle or reuse items.
- Choose alternatives for household chemicals. In recent years, alternatives have been more mainstream and are more readily available.
- Store chemicals used in the home, e.g., cleaners, pesticides, fuels, etc., carefully. Follow label directions.
- Dispose of wastes properly.
   Participate in local chemical round-up activities that provide low-cost or free disposal. Contact your local waste disposal facility to obtain information.

For more information about alternatives to household chemicals call the Department of Environmental Quality 1-800-452-4011



# DRINKING WATER PROTECTION FACT SHEET

# GROUNDWATER BASICS

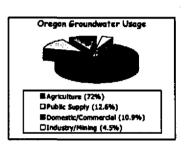


#### What Is Groundwater?

Groundwater can be found at various depths at any location on the Earth's surface. It is the water that fills the natural open spaces (e.g., fractures or pore spaces between grains) in soil and rocks underground in much the same way as water fills a sponge. Groundwater begins as precipitation and soaks into the ground where it is stored in underground geological water systems called aquifers. An aquifer is any geologic material (like sand and gravel or fractured bedrock) that is filled with water and will yield that water to a well. Groundwater can move sideways as well as up or down in response to gravity, differences in elevation, and differences in pressure. The movement is usually quite slow — frequently as little as a few feet per year — although it can move as much as several feet per day in more permeable zones. Groundwater does not occur as underground lakes or streams.

#### – Who Uses Groundwater?

Of all groundwater used in Oregon, the majority is used for irrigation. Future population growth and land development is increasingly depending on groundwater resources. Prior allocation and rising treatment costs limit future use. Over 70 percent of all Oregonians (that's more than two million people) are at least partially dependent on groundwater for their drinking water supplies. Approximately 95 percent of Oregonians in rural areas are dependent on groundwater. In many areas, groundwater is the only source of drinking water. Protecting our water supply from contamination now will help maintain a clean and safe water supply for generations to come.



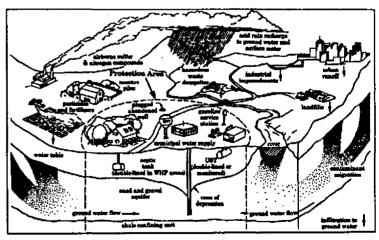
# Potential Sources of Contamination

- Household chemicals and cleaning products.
- Excess nitrogen fertilizers including manure and lawn fertilizers.
- \* Industrial solvents.
- Chemical spills from highway, railroad accidents, or spills from business or manufacturing sites.
- Improperly applied pesticides or pesticide spills.
- Leaking underground storage tanks.
- Improperly installed or old domestic wells.
- Poorly maintained septic systems.
- \* Urban runoff.
- Waste disposal sites or dumps.

#### How Does Groundwater Become Contaminated?

With the increased use of chemicals in the 20th century, the contamination of groundwater has become a growing concern. When rainwater comes in contact with any source of contamination at the surface or in the soil, it dissolves some of that contaminant and carries it to the aquifer. Groundwater moves from areas where the water table is high to where the water table is low. Consequently, a contaminant may enter the aquifer some distance upgradient of a public or private drinking water well and move towards the well. When a well is pumping, it lowers the water table in the immediate vicinity of the well increasing the tendency for water to move towards the well.

Although it is common practice to associate contamination with highly visible features such as landfills, gas stations, industry or agriculture, potential contaminants are widespread and often come from common everyday activities as well, such as septic systems, lawn and garden chemicals, pesticides applied to highway right-of-ways, stormwater runoff, auto repair shops, beauty shops, dry cleaners, medical institutions, photo processing labs, etc. Importantly, it takes only a



very small amount of some chemicals in drinking water to raise health concerns. For example: 1 gallon of pure trichloroethylene, a common solvent, will contaminate approximately 292 million gallons of water to the health-based limit for drinking water.

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## How Can I Help?

One person can make a difference. By making small changes in our lifestyles, we can make our environment better. We can also encourage our friends, relatives, co-workers, and neighbors to help prevent pollution. Some of the things you can do to protect groundwater in your community are listed below. **Oregon's future depends on us!** 

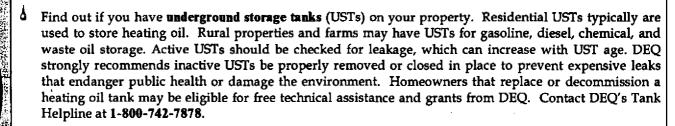
#### Things You Can Do To Protect Groundwater



- Learn more about where your water supply comes from, potential sources of contamination, and local and state waste protection efforts.
- Organize a groundwater forum, community water festival, water testing or other educational event.
- Support groundwater education in local schools.
- Volunteer to help develop and implement your community's Drinking Water Protection Program.
- Encourage your community to become active in the "Groundwater Guardian" program, a national non-regulatory program that recognizes local groundwater protection efforts. Contact the Groundwater Foundation for information 1-800-858-4844.



Properly dispose of household hazardous wastes. Take toxic chemicals like weed killers, pesticides, paint, thinners, strippers, wood preservatives, furniture polish, cleaning chemicals, and bleach to a hazardous waste collection center. Don't dump toxic chemicals down the drain or on the ground. Call your local garbage hauler for more information.



Conserve Water — Turn off the faucet when you are brushing your teeth, shaving, or washing your face and you will save 2-3 gallons of water each minute. Install low flow faucets and fix leaky faucets right away. Clean vegetables and fruits in a pan of water — not under a running faucet. Keep a container of drinking water in the refrigerator instead of letting the faucet run until the water is cold enough to drink. Run the dishwasher and washing machine only when fully loaded. Make every drop count!



- Recycle or properly dispose of used motor oil, grease and parts cleaners, and antifreeze. Solid and hazardous waste laws prohibit land spreading of waste oil for dust or weed suppression. Call your local garbage hauler for more information.
- Check for leaking fluids from vehicles. Clean up drips with an absorbent like kitty litter or sawdust and properly dispose of contaminated absorbent. Do not use water to wash spills since water percolates into the ground or discharges to storm drains in the street (which typically lead to streams and rivers).
- Inventory your hazardous household products like thinners, solvents, oil based paints, stains and finishes, paint and finish preparation products, photographic chemicals, and art supplies. Store only what you'll use; properly dispose of waste materials; and give extras to a neighbor for their use. Use less toxic alternatives whenever possible.

### Potential Sources of Source Water Contamination

OHD Source Water Assessment Program

**Instructions:** The following is a list of potential sources of ground water and surface water contamination. Please use the attached map of your water system supply to review and locate the following sources of contamination. If one or more of the listed potential sources of contamination are present within the protection area shown on the attached map, please place the assigned contaminant number on your system supply map in the area in which the potential contaminant source is located.

#### Waste

Leaks or defects in waste disposal, transportation, storage and treatment are a potential source of water supply contamination. Domestic sewage and garbage can contribute large quantities of unwanted toxic household chemical wastes as well as bacteria, viruses, nitrates and heavy metals to the source water. Commercial and Industrial waste is also a potential source of toxic chemical contamination.

- 1. Lagoon/Liquid Waste
- 2. Landfill/Dump Or Transfer Stations
- 3. Open Burning Sites
- 4. Sewer Lines

- 6. Septic Systems (gravity or lift), Cesspools,
  - Drainfields, Mound Systems, & Holding
  - Tanks

5. Storm Water Drains & Basins

#### Agricultural

Agricultural practices may contribute livestock sewage wastes and run-off, including bacteria, viruses, giardia and nitrates to the water supply. In addition, pesticide and fertilizer application and storage may also contaminate the water source with both nitrates and toxic chemicals.

- 7. Animal Burial Areas/Rendering Plants
- 8. Auction Lots
- Confined Animal Feed Lot (Dairies, Chicken/Turkey, Swine)
- 10. Fertilizer Storage/Use
- 11. Irrigated or Non-Irrigated Crops
- 12. Manure Spreading Areas/Pits

- 13. Pesticide Storage/Use
- Land Application of Food or Septage
   Wastes
- 15. Agricultural Drainage Well
- 16. Composting Sites



## Department of Human Resources

Health Division

800 NE Oregon Street # 21

Portland, OR 97232-2162 (503) 731-4030 Emergency

(503) 731-4381

FAX

(503) 731-4077

TTY-Nonvoice (503) 731-4031



#### TECHNICAL BULLETIN

# HEALTH EFFECTS INFORMATION

Prepared by:
Oregon Health Division
Environmental Toxicology Section
August 1990

# **NITRATE**

For More Information Contact:

Oregon Health Division Environmental Toxicology Section (503) 731-4015

Drinking Water Section (503) 731-4010

Assisting People to Become Independent, Healthy and Safe
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Technical Bulletin - Health Effects Information Nitrate Page 2

#### NITRATE

Nitrate is a compound formed when nitrogen combines with oxygen. This combination occurs in nature when nitrogen in the air reacts with oxygen or ozone. Amounts produced in this way however, are generally very small. It is produced by plants and animals, and is an ingredient in smoke and exhaust.

#### OCCURRENCE AND SOURCES OF NITRATE IN WATER SUPPLIES

Naturally occurring levels of nitrate in surface and groundwater do not generally exceed 2 milligrams per liter (mg/l). Water with less than 10 mg/l nitrate as nitrogen (NO<sub>3</sub>-N) is generally safe for use in foods and beverages. Sources of elevated nitrate levels include fertilizers, septic systems, animal feedlots, industrial wastes, and food processing waste. It can also be naturally occurring in certain geological settings, and can result from decaying organic matter. Elevated levels of nitrate found in well water are often used as indicators of inproper well construction or location, overuse of chemical fertilizers or improper disposal of human and animal waste.

#### HEALTH EFFECTS OF DRINKING NITRATE CONTAMINATED WATER

The United States Environmental Protection Agency (USEPA) has set a maximum contaminate level (MCL) of 10 mg/l for nitrate (NO<sub>3</sub>-N) in public water supplies. Nitrate levels above 10 mg/l may represent a serious health concern for <u>infants</u> and <u>pregnant</u> or <u>nursing women</u>. Adults receive more nitrate exposure from food. Infants, however, receive the greatest exposure from drinking water because most of their food is in liquid form. Nitrate can interfere with the ability of the blood to carry oxygen to vital tissues of the body in infants of six months old or younger. The result is called methemoglobinemia, or "blue baby syndrome". Pregnant women may be less able to tolerate nitrate, and nitrate in the milk of nursing mothers may affect infants directly. These persons should not consume water containing more than 10 mg/l nitrate directly, added to food products, or beverages (especially in baby formula). Other domestic use of this water supply is acceptable, including washing and bathing.

The 10 mg/l standard for NO<sub>3</sub>-N in public drinking water supplies has been devised to protect a select group of sensitive persons (infants, and pregnant and nursing women). Available health information suggests that non-sensitive persons, including healthy adults and children older than six months in age, can consume water containing up to 20 mg/l nitrate without experiencing adverse health effects. At nitrate levels above 20 mg/l the Division recommends, that alternate water supplies be used by all persons. It has been suggested in preliminary studies that excessive nitrate ingestion may be linked to gastric cancer. This link, however, has not been firmly established and current exposure levels do not appear to put the population at risk.



## Department of Human Resources

Health Division

800 NE Oregon Street # 21

Portland, OR 97232-2162 (503) 731-4030 Emergency

(503) 731-4381

FAX

(503) 731-4077

TTY-Nonvoice (503) 731-4031



#### TECHNICAL BULLETIN

# HEALTH EFFECTS INFORMATION

Prepared by:
Oregon Health Division
Environmental Toxicology Section
April 1994

## **COLIFORM BACTERIA**

For More Information Contact:

Oregon Health Division Environmental Toxicology Section (503) 731-4015

> Drinking Water Section (503) 731-4010

Assisting People to Become Independent, Healthy and Safe
An Equal Opportunity Employer

Technical Bulletin - Health Effects Information Coliform Bacteria Page 2

#### WATERBORNE DISEASE AND MICROORGANISMS

Microorganisms are widely spread over the earth and throughout its atmosphere.

Microorganisms include bacteria, viruses, and protozoan parasites; they are microscopic and therefore invisible to the naked eye. They are found in all surface waters, including lakes, streams, and rivers. They can be found in shallow and unprotected wells and springs and, less often, in deep and protected well waters. Many microorganisms can survive extremes of climate. Most microorganisms in the environment and found in water are not harmful, but enough of them are harmful that we strive to maintain drinking water nearly microorganism-free.

Microorganisms that have the most significance to human health are those that cause disease, called pathogens. Examples of common pathogens include bacteria such as Salmonella and Shigella, protozoans such as Giardia and Cryptosporidium, and viruses such as hepatitis A and Norwalk. These pathogens are transmitted by the fecal-oral route of exposure; this means that feces from an infected person or animal are transmitted directly or indirectly to another person's mouth. An example of direct transmission would be from person-to-person, such as in day care settings serving young children in diapers. Examples of indirect transmission include food contaminated due to poor food handling and sanitation practices, and contaminated drinking water.

It is not possible to regularly test drinking water for the presence of disease-causing organisms because they exist in very low numbers in water, are hard to isolate and detect, and there are so many different kinds it would be impractical and expensive to test for them all regularly. Consequently, public health agencies and water suppliers in this country rely on certain kinds of bacteria that are known as "indicator organisms". These indicators do not generally cause disease, but do occur in large numbers, are associated with fecal pollution, are generally hardier in the environment than pathogens, and are easy to test for. In other words, the indicators serve as markers for the kind of fecal contamination that can lead to disease under some circumstances.

The most common of these test organisms is the broad class of bacteria called coliforms. The presence of coliforms in drinking water suggests microbiological contamination of the source water, a failure of the water treatment system, a break or leak in the water mains, or contamination of the water distribution system by backflow from households or commercial establishments. When coliforms are detected in drinking water, immediate action should be taken to identify the source or sources of the bacteria and eliminate them.

h:\home\fs\colibact.fac

Technical Bulletin - Health Effects Information Coliform Bacteria Page 4

#### PATHOGENIC E. COLI (E. COLI 0157:H7)

This organism is a very specialized and rare strain of *E. coli* that causes illness and its presence in drinking water would be an extreme health concern. There has been one outbreak of infection by this organism attributed to contaminated public drinking water in the United States. Generally, the source of *E. coli O157:H7* transmission is undercooked or mishandled hamburger or other meat products, raw milk, or other foods that have been contaminated with human or animal fecal waste and not adequately cooked. Current routine water testing methods can not distinguish between this organism and the harmless indicator strains, so water containing any *E. coli* should not be consumed without treatment or boiling.

#### EMERGENCY TREATMENT MEASURES

Construction or maintenance work, such as pump replacement in an existing well, can temporarily contaminate well water with coliform bacteria. Bacteria from soil, vegetation, and the tools and hands of the maintenance crew could enter the well. Before using the water, disinfect and flush the entire system and then sample for coliform. The safest temorary measure to kill coliforma nd other microorganisms in drinking water is to bring the water to a rolling boil for one full minute. Chlorination or other chemical disinfection techniques are also effective if properly applied.

The procedure for chlorination is as follows:

For each 100 gallons of well water, add two cups (16 ounces) of household bleach (5% sodium hypochlorite) available from grocery stores.

EXAMPLE: How much 5% bleach is needed to disinfect a well with a 6 inch diameter casing and now has 65 feet of water? Answer: The table below shows there are 1.5 gallons of water for each foot of water depth for a 6" diameter well. Multiply the total water depth of 65 feet X 1.50 gallons per foot = 97.5 gallons of water in this 6" diameter well. Since 97.5 feet is about 100 gallons, add 2 cups of 5% bleach to the well to disinfect it.

h:\home\fs\colibact.fac

(503) 731-4317 - PAX (503) .731-4077 34Nonvoice (503) 731-4031



#### FACT SHEET

#### **COLIFORM BACTERIA**

Collform Bacteria: Bacteria is found in most natural water from surface or shallow ground sources. These bacteria are harmless to humans and essential to the natural decay of organic matter found in water. However, when the water source contains bacteria that comes from human or animal wate, the water can cause illness. Because these bacteria are difficult and time consuming to isolate and identify, microbiologists have developed the "total coliform test" to simplify the task. The presence of coliform bacteria in a water supply shows possible pollution that may contain disease causing organisms. The total coliform group can survive longer in water than most disease causing organisms and are easier to identify. Therefore, safe water is free of total coliform bacteria. The microbiologist uses one of several methods to determine if coliform bacteria are present in water and reports the results as coliform present or absent.

#### How to Disinfect a Well

Construction or maintenance work, such as pump replacement in an existing well, can temporarily contaminate well water with coliform bacteria. Bacteria from soil, plants, and the tools and hands of the maintenance crew could enter the well. Before using the water, disinfect and flush the entire system and then sample for coliform.

The procedure is as follows:

For each 100 gailons of well water, add two cups (15 ounces) of household bleach (5% sodium hypochlorite) available from grocery stores.

EXAMPLE: How much 5% bleach is needed to disinfect a well with a 6 inch diameter casing and has 65 feet of water?

Answer: The table below shows there are 1.5 gallons of water for each foot of water depth for a 6" diameter well. Multiply the total water depth of 65 feet X 1.50 gallons per foot = 97.5 gallons of water in this 6" diameter well. Since 97.5 feet is about 100 gallons, add 2 cups of 5% bleach to the well to disinfect it.

DEPARTMENT OF HUMAN RESOURCES

HEALTH DIVISION



Barbara Roberts Governor



800 NE Oregon Street # 21 Portland, OR 97232 (503) 731-4030 Emergency (503) 252-7978 TDD Emergency 2+26 (Kev. 1-92)

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26 February 1993

Mr. William Kistler Plant Manager Ash Grove Cement Company P.O. Box 83007 Portland, Oregon 97283

RE: Ash Grove Cement Plant, Portland, Oregon Monitoring Well Installation and Monitoring PBS Project No. 5065.00

Dear Mr. Kistler:

Upon authorization from Ash Grove Cement Company on December 21, 1992, PBS installed three groundwater monitoring wells around the above-ground fuel oil tanks at the Ash Grove Portland Plant. The purpose of these wells is to serve as a leak detection system for the tanks.

The tanks consist of one 125,000 gallon waste oil tank, one 25,000 gallon off-spec waste oil tank, and one 4,000 gallon #2 fuel oil tank. The two larger tanks are vertically oriented and rest on flat bases. The smaller tank is horizontally oriented and is mounted on saddles. The 25,000 gallon tank reportedly once held diesel fuel.

#### WELL CONSTRUCTION & GROUNDWATER SAMPLING

Three wells were constructed in the locations shown on the attached Site Plan. The shallow groundwater gradient was assumed to be in a westerly direction, toward the Willamette River. One well (MW-1) was placed in an upgradient location, and the other two wells (MW-2, MW-3) were placed in downgradient locations.

All wells were drilled and constructed by Pacific Northwest Drilling Company of Eugene, Oregon on December 22, 1992. Drilling was performed with a hollow-stem auger.

Each well was drilled to a depth of 15 feet. Soil samples were obtained using standard penetration methods and split-spoon samplers at 5-foot intervals. Soil was visually examined and

ENVIRONMENTAL MANAGEMENT AND CONSULTING

1220 S.W. Merrison

Portland, Oregon 97205

503/248-1939

503/248-0223 FAX

1771-TT

lithology was logged (see attached Boring Logs).

The bottom 10 feet of the wells were screened with slotted PVC screen, and the remaining well constructed with 2-inch threaded PVC. A sand filter-pack was placed around the screened interval wherever possible, however heaving sand made placement of the filter pack impossible in some cases (see boring logs for well construction details).

Each well was completed with a locking cap and monument, finished above the ground surface. Steel bullards were placed around the wells as required by Oregon Department of Water Resources. Each well was surveyed to determine vertical elevation to the top of the monument. The wells were developed on January 8, 1993 using surge blocks.

Water samples were collected from each well using dedicated disposable bailers. Approximately four well volumes were purged with the bailer before water samples were collected.

Samples were placed directly into 1-liter, amber glass bottles with Teflon lid seals, then stored at  $4^{\circ}\text{C}$  for the duration of site work and transport to the laboratory.

#### FINDINGS

Well elevations and water level data is given in Table 1. Groundwater elevation contours are plotted on Figure 1. The depth to groundwater is 7-8 feet below ground surface, and the groundwater contours suggest that the direction of local shallow groundwater flow is to the northwest.

Low levels of diesel fuel (690 and 790 parts per billion) were detected in wells MW-1 and MW-3, respectively. No hydrocarbons were detected in well MW-2.

According to Dick Reid of Coffey Laboratories, the contaminant profiles looked like a weathered diesel fuel, since many of the lighter fractions were dispersed. No heavier oil was detected in the profile.

TABLE 1
WATER LEVEL MEASUREMENTS (1/8/93)

	Elevation -	Depth to	Groundwater
<u>Well #</u>	Top of Metal Casing	<u>Groundwater</u> *	<u>Elevation</u>
MW-1	100.00'	9.98'	90.02'
MW-2	99 <b>.22′</b>	9.79 <b>′</b>	89.43′
MW-3	99.51	10.64′	88.87′

Datum: Top of well casing - MW-1 (assumed 100.00')

\*Measured from top of metal well casing

TABLE 2
LABORATORY ANALYSIS

ANALYSIS	WELL	WELL	WELL	DETECTION
	<u>MW-1</u>	MW-2	MW-3	<u>LIMIT</u>
Gasoline	ND	ND	ND	70
Diesel	690	ND	790	200

ND: None Detected All values are given in parts per billion (ppb) Analysis by Modified EPA Method 8015

#### DISCUSSION

The concentrations of diesel fuel in wells MW-1 and MW-3 represent relatively low levels of contamination. Although there are no regulatory standards for diesel fuel in groundwater, there are standards for many of the constituents that make up diesel fuel. The tests which would detect those compounds were not run on these samples.

The levels of diesel fuel detected may be the result of spillage of diesel fuel from the 25,000 gallon tank. You had earlier reported to PBS that water was periodically drained from the bottom of the tank by an employee of Ash Grove, and the water/diesel fuel mixture was allowed to spill onto the unprotected ground surface.

#### RECOMMENDATIONS

This situation is not required to be reported to the EPA or Oregon DEQ, since the contamination is not related to an underground storage tank, nor was it apparently the result of a reportable spill. Since the apparent cause of the release has been eliminated by the placement of a concrete slab around the tanks, no further abatement measures seem necessary at this time.

Groundwater samples should be collected from the wells and analyzed for BTEX compounds (EPA Method 8020) and Polynuclear Aromatic Hydrocarbons (EPA Method 8310) to determine whether the levels meet Oregon Groundwater Quality Standards (OAR 340-122-045). The groundwater gradient should also be measured at that time.

Periodic leak-detection monitoring can continue to focus on detection of heavy oils.

Please call me if you have any questions regarding this information.

Sincerely,

Erik Anderson, R.G.

Eil Andh

Director of Environmental Services

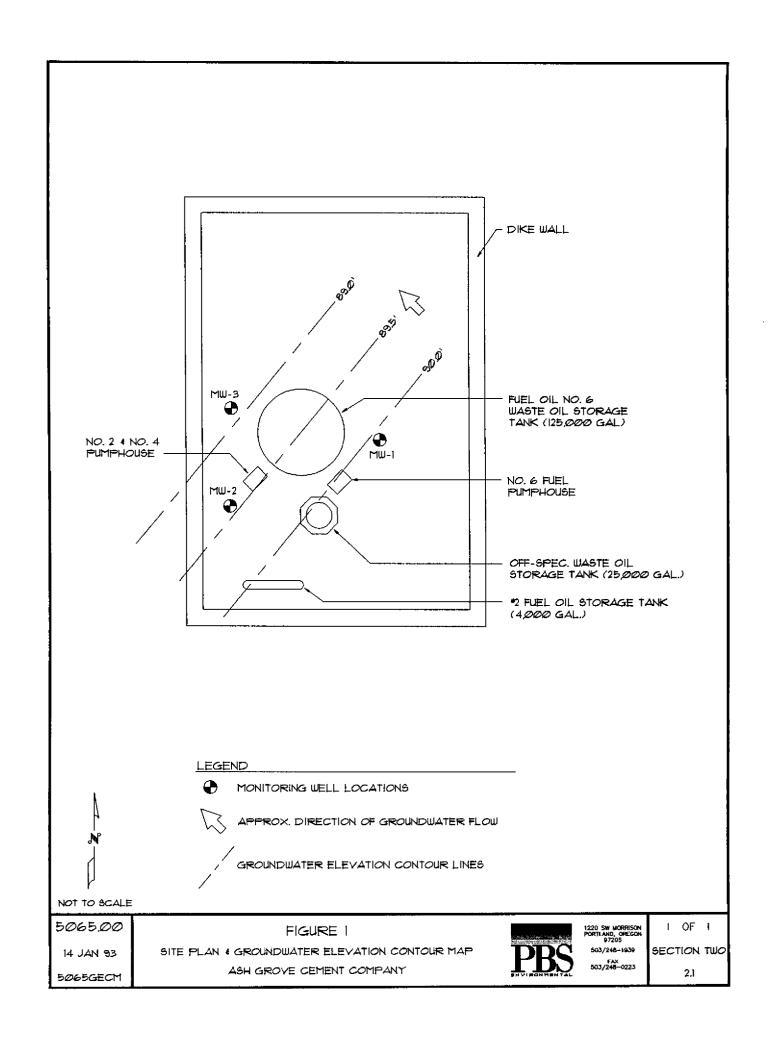
Attachments:

Site Plan

Test Boring Logs (3 pages)

Laboratory Reports

Sample Chain of Custody Forms



#### EXPLORATORY BORING RECORD

PROJECT NAME:

ASH GROVE CEMENT

MW-1

PROJECT NUMBER:

5067.00

BORE NUMBER: 1 OF 1

LOCATION: DRILLED BY: TANK FARM PNW DRILLING GROUND SURFACE

DRILLING METHOD:

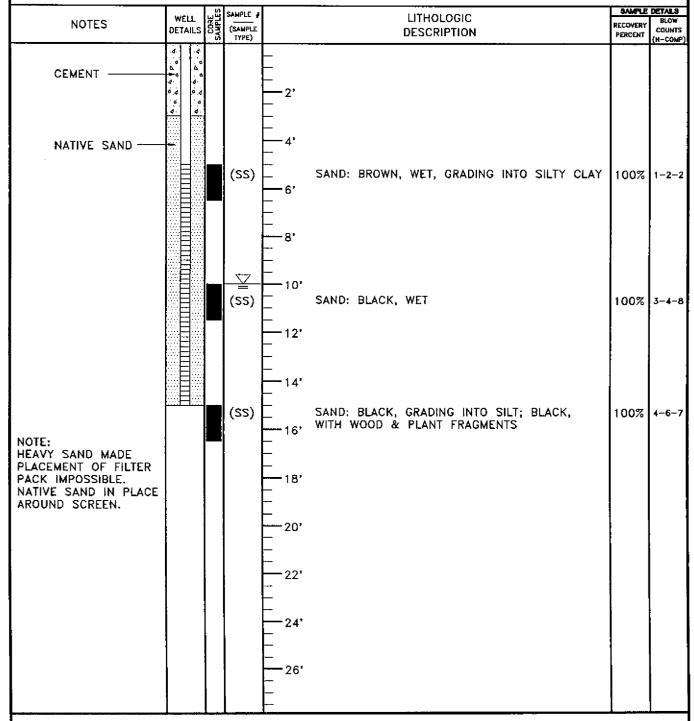
DRILL DEPTH: HS AUGER DATE:

15' 22 DEC 92

RECORDED BY: ERIK ANDERSON DRAWING NUMBER: 5067BOR1

REFERENCE ELEV.:

PAGE:





 $SS=Split\ barrel\ sampler.\ Samples\ driven\ with\ a\ 140\ lb.$  hammer using a  $30^{\prime\prime}$  stroke. Blow counts may not be representative of actual soil density. REMARKS:

#### EXPLORATORY BORING RECORD

PROJECT NAME: PROJECT NUMBER: ASH GROVE CEMENT 5067.00

BORE NUMBER: PAGE:

MW-21 OF 1

LOCATION:

DRILLED BY:

TANK FARM PNW DRILLING REFERENCE ELEV.:

GROUND SURFACE

DRILL DEPTH:

DATE:

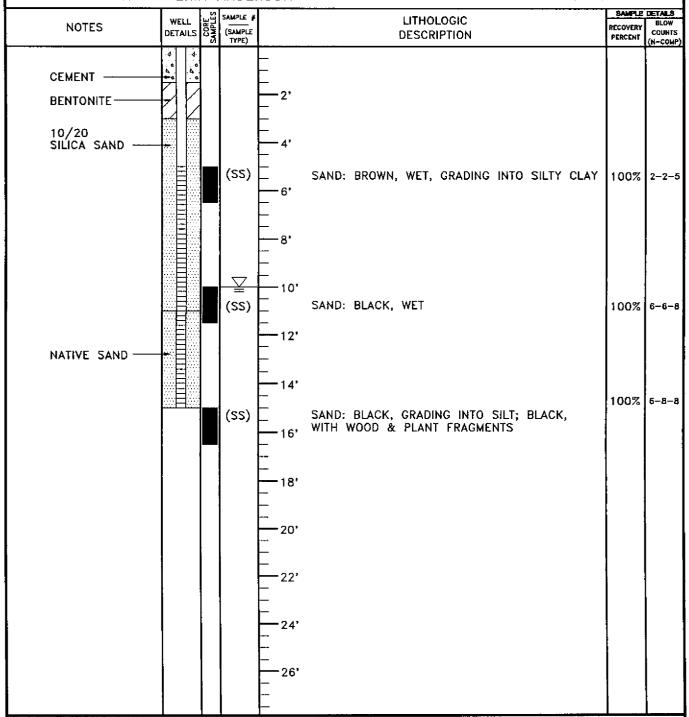
15' 22 DEC 92

DRILLING METHOD: RECORDED BY:

HS AUGER ERIK ANDERSON

DRAWING NUMBER:

5067BOR2





SS = Split barrel sampler. Samples driven with a 140 lb. hammer using a 30" stroke. Blow counts may not be representative of actual soil density. REMARKS:

#### EXPLORATORY BORING RECORD

PROJECT NAME:

ASH GROVE CEMENT

BORE NUMBER:

MW-3

PROJECT NUMBER: LOCATION:

5067.00

TANK FARM

PAGE: REFERENCE ELEV .:

1 OF 1 GROUND SURFACE

DRILLED BY: PNW DRILLING DRILL DEPTH:

15'

DRILLING METHOD: RECORDED BY:

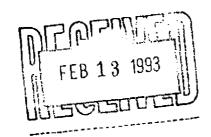
HS AUGER ERIK ANDERSON DATE: 22 DEC 92 DRAWING NUMBER: 5067BOR3

	WELL LA SAMPLE	LITHOLOGIC	SAMPLE	
NOTES	WELL SAMPLE DETAILS SAMPLE (SAMPLE TYPE)	EITHOLOGIC	RECOVERY PERCENT	BLOW COUNT (N-COM
CEMENT ————————————————————————————————————	(ss)		100%	3-4-
		WET 12'	100%	4-7-
NATIVE SAND	(SS)	— 14'	100%	6-7
		——————————————————————————————————————		



**REMARKS:** SS = Split barrel sampler. Samples driven with a 140 lb. hammer using a 30" stroke. Blow counts may not be representative of actual soil density.





Report Date: February 11, 1993

Job#: GE-930205AA-3

PO#: None

Project#: 5065.00 Project: AGC-PBS

Attention: D. Hancock PBS Environmental Building

Consultants, Inc.

1220 SW Morrison, Suite 500

Portland, OR 97205

SAMPLE INFORMATION:

Date Samples Were Received By Laboratory: 02/05/93

Lab No.	Field Identification	Sample Matrix	Date	Time
1	5065.00-1	Ground Water	02-05-93	1100
2	5065.00-2	Ground Water	02-05-93	1100
3	5065.00-3	Ground Water	02-05-93	1100

#### ANALYTICAL RESULTS:

ANALYSIS PERFORMED: Hydrocarbon Scan of ground water by Modified EPA Method 8015, GC/FID.

PARAMETER	DETECTION LIMIT	SAMPLE #1 RESULTS	SAMPLE #2 RESULTS	SAMPLE #3 <u>RESULTS</u>
Gasoline	70	ND	ND	ND
Diesel	200	690	ND	790

Results expressed as  $\mu g/L$  unless otherwise noted.

ND means none detected at or above the detection limit listed.

Sincerely,

Susan M. Coffey

President

#### SMC/mlh

This report is for the sole and exclusive use of the above-named client. Samples are retained 15 days from the report date, or until holding time expires. Results pertain only to samples submitted.

#### COFFEY LABORATORIES INC.

12423 N.E. WHITAKER WAY, PORTLAND, OR 97230 (503) 254-1794 • FAX (503) 254-1452



# COFFEY LABORATORIES - PENDLETON BRANCH

287 S.E. FIRST, PENDLETON, OR 97801 (503) 276-0385

## **CHAIN OF CUSTODY**

PROJECT #: PROJECT NAME:		P.O. #:			of PAGE ASE PRINT OR TYPE	FOR LABOR	ATORY USE ONLY
COMPANY NAME: PTS ENVIRON	MENTA	_ <del>_</del>				JOB #:	
REPORT ATTENTION: D. HANCO						GE93	0205-RA3
SAMPLES COLLECTED BY:	EA.					CUSTABBR:	(N I (ON
FIELD IDENTIFICATION:	LAB	COLLECT	TION				ANALYSIS
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C/U 5-3-98

26 February 1993

Mr. William Kistler Plant Manager Ash Grove Cement Company P.O. Box 83007 Portland, Oregon 97283

ost-It" brand fax transmittal	memo 7671   # of pages
Dick Gabel	Now VAH
Co.	Co.
Dept.	Phone #
Fax #	Fax #

RE:

Ash Grove Cement Plant, Portland, Oregon Monitoring Well Installation and Monitoring PRS Project No. 5065 00

PBS Project No. 5065.00

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#### WELL CONSTRUCTION & GROUNDWATER SAMPLING

Three wells were constructed in the locations shown on the attached Site Plan. The shallow groundwater gradient was assumed to be in a westerly direction, toward the Willamette River. One well (MW-1) was placed in an upgradient location, and the other two wells (MW-2, MW-3) were placed in downgradient locations.

All wells were drilled and constructed by Pacific Northwest Drilling Company of Eugene, Oregon on December 22, 1992. Drilling was performed with a hollow-stem auger.

Each well was drilled to a depth of 15 feet. Soil samples were obtained using standard penetration methods and split-spoon samplers at 5-foot intervals. Soil was visually examined and

ENVIRONMENTAL MANAGEMENT AND CONSULTING

1220 S.W. Morrison

Pordand, Oregon 97105

503/148-1939

503/248-0223 FAX

lithology was logged (see attached Boring Logs).

The bottom 10 feet of the wells were screened with slotted PVC screen, and the remaining well constructed with 2-inch threaded PVC. A sand filter-pack was placed around the screened interval wherever possible, however heaving sand made placement of the filter pack impossible in some cases (see boring logs for well construction details).

Each well was completed with a locking cap and monument, finished above the ground surface. Steel bullards were placed around the wells as required by Oregon Department of Water Resources. Each well was surveyed to determine vertical elevation to the top of the monument. The wells were developed on January 8, 1993 using surge blocks.

Water samples were collected from each well using dedicated disposable bailers. Approximately four well volumes were purged with the bailer before water samples were collected.

Samples were placed directly into 1-liter, amber glass bottles with Teflon lid seals, then stored at  $4^{\circ}\text{C}$  for the duration of site work and transport to the laboratory.

#### FINDINGS

Well elevations and water level data is given in Table 1. Groundwater elevation contours are plotted on Figure 1. The depth to groundwater is 7-8 feet below ground surface, and the groundwater contours suggest that the direction of local shallow groundwater flow is to the northwest.

Low levels of diesel fuel (690 and 790 parts per billion) were detected in wells MW-1 and MW-3, respectively. No hydrocarbons were detected in well MW-2.

According to Dick Reid of Coffey Laboratories, the contaminant profiles looked like a weathered diesel fuel, since many of the lighter fractions were dispersed. No heavier oil was detected in the profile.

# TABLE 1 WATER LEVEL MEASUREMENTS (1/8/93)

	Elevation -	Depth to	Groundwater
Well #	Top of Metal Casing	Groundwater*	Elevation
MW-1	100.00'	9.98'	90.02
MW-2	99.22'	9.79'	89.43'
MW-3	99.51	10.64'	88.87'

Datum: Top of well casing - MW-1 (assumed 100.00') \*Measured from top of metal well casing

# TABLE 2 LABORATORY ANALYSIS

ANALYSIS	WELL	WELL	WELL	DETECTION
	<u>MW-1</u>	MW-2	MW-3	LIMIT
Gasoline	ND	ND	ND	70
Diesel	690 PPB	ND	790 PPB	200 PPB

ND: None Detected All values are given in parts per billion (ppb) Analysis by Modified EPA Method 8015

#### DISCUSSION

The concentrations of diesel fuel in wells MW-1 and MW-3 represent relatively low levels of contamination. Although there are no regulatory standards for diesel fuel in groundwater, there are standards for many of the constituents that make up diesel fuel. The tests which would detect those compounds were not run on these samples.

The levels of diesel fuel detected may be the result of spillage of diesel fuel from the 25,000 gallon tank. You had earlier reported to PBS that water was periodically drained from the bottom of the tank by an employee of Ash Grove, and the water/diesel fuel mixture was allowed to spill onto the unprotected ground surface.

#### RECOMMENDATIONS

This situation is not required to be reported to the EPA or Oregon DEQ, since the contamination is not related to an underground storage tank, nor was it apparently the result of a reportable spill. Since the apparent cause of the release has been eliminated by the placement of a concrete slab around the tanks, no further abatement measures seem necessary at this time.

Groundwater samples should be collected from the wells and analyzed for BTEX compounds (EPA Method 8020) and Polynuclear Aromatic Hydrocarbons (EPA Method 8310) to determine whether the levels meet Oregon Groundwater Quality Standards (OAR 340-122-045). The groundwater gradient should also be measured at that time.

Periodic leak-detection monitoring can continue to focus on detection of heavy oils.

Please call me if you have any questions regarding this information.

Sincerely,

Erik Anderson, R.G.

Director of Environmental Services

Attachments:

Site Plan

Test Boring Logs (3 pages)

Laboratory Reports

Sample Chain of Custody Forms



15-4

11 June 1993

Mr. William Kistler Plant Manager Ash Grove Cement Company P.O. Box 83007 Portland, Oregon 97283

RE: Ash Grove Cement Plant, Portland, Oregon Groundwater Monitoring - Fuel Oil Tank Farm Follow-Up Monitoring PBS Project No. 5065.10

Dear Mr. Kistler:

Upon authorization from Ash Grove Cement Company on April 22, 1993, PBS collected groundwater samples from the three groundwater monitoring wells around the above-ground fuel oil tanks at the Ash Grove Portland Plant. The wells were installed in December, 1992 as a leak detection system for the tanks. The first round of sampling detected diesel fuel in wells MW-1 and MW-3 (690 and 790 ppm, respectively). The source of the diesel fuel contamination is believed to be from spillage from the tank which previously contained diesel fuel.

The purpose of the current phase of testing was to identify and quantify potentially hazardous constituents in the water from the three wells, related to the diesel fuel.

#### FIELD METHODS

Water samples were collected from each well using dedicated disposable bailers. Approximately four well volumes were purged with the bailer, and chemical parameters (pH, temperature, and specific conductance) before water samples were collected.

Samples were placed directly into appropriate laboratory-supplied containers, then stored at  $4^{\circ}\text{C}$  for the duration of site work and transport to the laboratory. Samples were analyzed for aromatic volatile organics (EPA 8020) and polynuclear aromatic hydrocarbons (EPA 8270 w/ SIM).

ENVIRONMENTAL MANAGEMENT AND CONSULTING Ash Grove Cement Company Follow-Up Groundwater Monitoring 11 June 1993 Page 2

#### **FINDINGS**

Well elevations and water level data is given in Table 1. Groundwater elevation contours are plotted on Figure 1. The depth to groundwater is 4-6 feet below ground surface. The groundwater contours suggest that the direction of local shallow groundwater flow is to the south/southeast. This is almost the opposite direction as measured in February, 1993, when the groundwater flow direction was to the northwest.

Pyrene, a common constituent of diesel fuel, was detected in the water from well MW-3 at 0.12 parts per billion (ppb). Water from the same well contained 790 ppm diesel fuel during the previous investigation in February.

No other contaminants were detected in any of the wells.

TABLE 1
WATER LEVEL MEASUREMENTS (1/8/93)

	Elevation -	Depth to	Groundwater
<u>Well #</u>	Top of Metal Casing	<u>Groundwater</u> *	<u>Elevation</u>
MW-1	100.00′	8.68′	91.32'
MW-2	99.22 <b>′</b>	8.62 <b>′</b>	90.60 <b>′</b>
MW-3	99.51	6.49′	93.02 <b>′</b>

Datum: Top of well casing - MW-1 (assumed 100.00')
\*Measured from top of metal well casing

TABLE 2
LABORATORY ANALYSIS

ANALYSIS	WELL MW-1	WELL MW-2	WELL MW-3	DETECTION LIMIT
BTEX	ND	ND	ND	.50
PAH (Pyrene)	ND	ND	0.12	.10
Other PAH				
Compounds	ИD	ND	ND	.1020

ND: None Detected

All values are given in parts per billion (ppb)

Analysis by Modified EPA Method 8015

Ash Grove Cement Company Follow-Up Groundwater Monitoring 11 June 1993 Page 3

#### DISCUSSION

The concentration of pyrene in well MW-3 (0.12 ppb) is well below the groundwater reference concentration of 1.0 ppm (1,000 ppb) per OAR 340-122-045. This situation is not required to be reported to DEO.

The dramatic shift in groundwater flow direction is likely due to seasonal effects, and is not uncommon in areas such as this which are in close proximity to a major water body and where topography is flat. This back-and-forth groundwater flow could cause the contaminants in the groundwater to remain in this area for a longer period of time.

#### RECOMMENDATIONS

PBS recommends quarterly sampling of groundwater from the three wells to monitor levels of pyrene and other PAH compounds. Leak-detection monitoring can be performed at the same time, using Hydrocarbon Identification analysis (EPA 8015 Modified) to screen for heavy oil.

Please call me if you have any questions regarding this information.

Sincerely,

Erik Anderson, R.G.

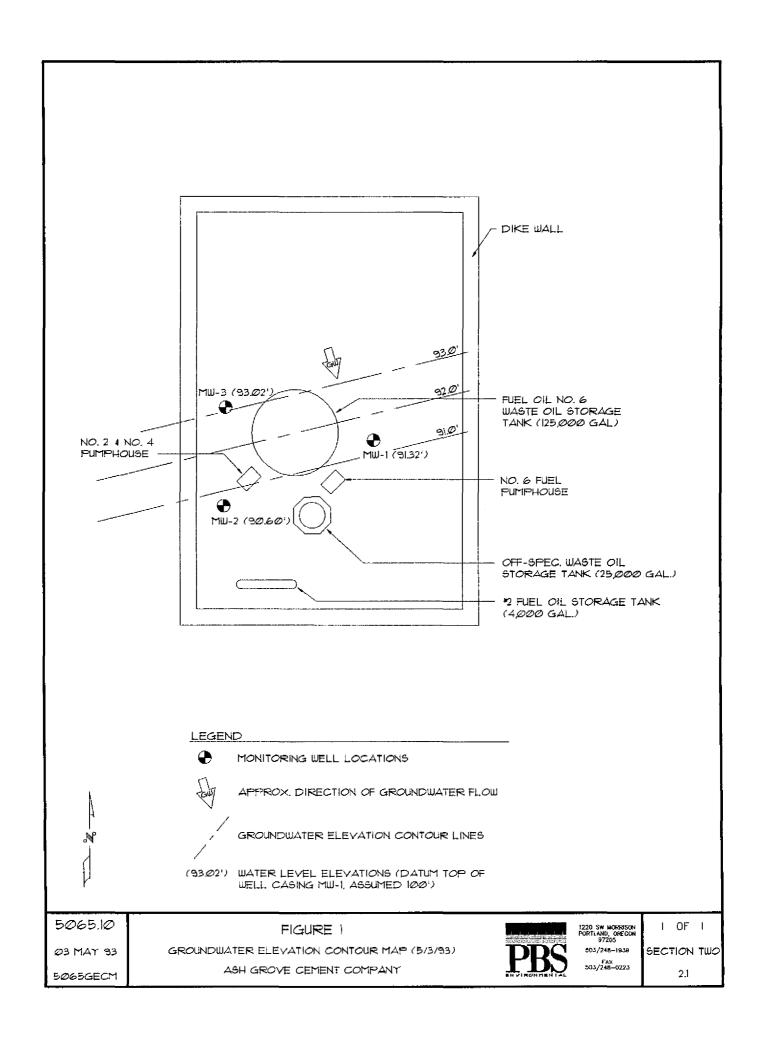
Director of Environmental Services

LA.h.

Attachments:

Site Plan
Laboratory Reports

Sample Chain of Custody Forms





May 12, 1993

PBS Environmental Building Consultants, Inc. 1220 S.W. Morrison Portland, OR 97205

Attn: Erik Anderson

Re: JOB #5065.10

PROJECT - ASH GROVE

PEL #93-1290

Enclosed is the lab report for your samples which were received on May 3, 1993.

#### I. Sample Description

Three Water Samples

The samples were received under a chain of custody.

The samples were received in containers consistent with EPA protocol.

#### II. Quality Control

No project specific QC was requested. In-house QC data is available upon request.

#### III. Analytical Results

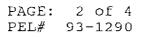
Test methods may include minor modifications of published methods such as detection limits or parameter lists. Solid and waste samples are reported on an "as received" basis unless otherwise noted.

Compounds not detected are listed under results as ND.

Sincerely,

Howard Holmes Project Manager

Project Manager

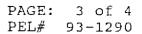




METHOD: BTEX per EPA 8020
Results in ug/L (ppb)

<u>Analyte</u>	<u>MW-1.</u>	<u>MW-2</u>	<u>MW-3</u>	Detection <u>Limit</u>
Benzene Ethylbenzene Toluene Xylenes (total)	ND ND ND ND	ND ND ND ND	ND ND ND ND	0.50 0.50 0.50 0.50
Date Prepped: Date Analyzed: Surrogate Recovery (%	05/04/93 05/04/93 )	05/04/93 05/04/93	05/04/93 05/04/93	Control <u>Limit</u>
4-Bromofluorobenzene	100	102	100	75-120

<u>Analyte</u>	Method <u>Blank</u>	Detection <u>Limit</u>
Benzene	ND	0.50
Ethylbenzene	ND	0.50
Toluene	ИD	0.50
Xylenes (total)	ND	0.50



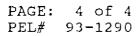


METHOD: PAH's by EPA 8270-Modified GC/MS in SIM Mode. This

method is equivalent to Method 8310 for Oregon UST Fuels Program, per Rick Gates, Oregon DEQ. Detection limits

are from SIM analysis.

Analyte	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	Detection <u>Limit</u>
Acenaphthene	ND	ND	ND	0.10
Acenaphthylene	ND	ND	ND	0.10
Anthracene	ND	ND	ND	0.10
Benzo(a)anthracene	ND	ND	ND	0.10
Benzo(a)pyrene	ND	ND	ND	0.10
Benzo(b)fluoranthene	ND	ND	ND	0.10
Benzo(g,h,i)perylene	ND	ND	ND	0.10
Benzo(k)fluoranthene	ND	ND	ND	0.10
Chrysene	ИД	ND	ND	0.10
Dibenzo(a,h)anthracene	ND	ND	ND	0.10
Fluoranthene	ND	ND	ND	0.10
Fluorene	ИD	ND	ND	0.10
Indeno(1,2,3-cd)pyrene	ND	ND	ND	0.20
Naphthalene	ND	ND	ND	0.10
Phenanthrene	ND	ND	ND	0.10
Pyrene	ND	ND	0.12	0.10
Date Prepped:	05/05/93	05/05/93	05/05/93	
Date Analyzed:		05/06/93		
Surrogate Recovery (%)	, ,	, ,	, ,	Control Limit
bullogate Recovery (8)				<u> </u>
2-Fluorobiphenyl	63	91	85	43-116
Nitrobenzene-d5	61	90	81	35-114
p-Terphenyl-d14	84	114	104	33-141





METHOD: PAH's by EPA 8270-Modified GC/MS in SIM Mode. This
method is equivalent to Method 8310 for Oregon UST Fuels

method is equivalent to Method 8310 for Oregon UST Fuels Program, per Rick Gates, Oregon DEQ. Detection limits

are from SIM analysis.

<u>Analyte</u>	Method <u>Blank</u>	Detection <u>Limit</u>
Acenaphthene	ND	0.10
Acenaphthylene	ND	0.10
Anthracene	ND	0.10
Benzo(a)anthracene	ND	0.10
Benzo(a)pyrene	ND	0.10
Benzo(b)fluoranthene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Benzo(k)fluoranthene	ND	0.10
Chrysene	ND	0.10
Dibenzo(a,h)anthracene	ND	0.10
Fluoranthene	ND	0.10
Fluorene	ND	0.10
Indeno(1,2,3-cd)pyrene	ND	0.20
Naphthalene	ND	0.10
Phenanthrene	ND	0.10
Pyrene	ND	0.10

9405 S.W. Nimbus Ave. Beaverton, OR 97005 (503) 644-0660 Fax (503) 644-2202 CHAIN OF CUSTODY RECORD

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11 June 1993



Mr. William Kistler Plant Manager Ash Grove Cement Company P.O. Box 83007 Portland, Oregon 97283

RE: Ash Grove Cement Plant, Portland, Oregon Groundwater Monitoring - Fuel Oil Tank Farm Follow-Up Monitoring PBS Project No. 5065.10

10 G

Dear Mr. Kistler:

Upon authorization from Ash Grove Cement Company on April 22, 1993, PBS collected groundwater samples from the three groundwater monitoring wells around the above-ground fuel oil tanks at the Ash Grove Portland Plant. The wells were installed in December, 1992 as a leak detection system for the tanks. The first round of sampling detected diesel fuel in wells MW-1 and MW-3 (690 and 790 ppm, respectively). The source of the diesel fuel contamination is believed to be from spillage from the tank which previously contained diesel fuel.

The purpose of the current phase of testing was to identify and quantify potentially hazardous constituents in the water from the three wells, related to the diesel fuel.

#### FIELD METHODS

Water samples were collected from each well using dedicated disposable bailers. Approximately four well volumes were purged with the bailer, and chemical parameters (pH, temperature, and specific conductance) before water samples were collected.

Samples were placed directly into appropriate laboratory-supplied containers, then stored at 4°C for the duration of site work and transport to the laboratory. Samples were analyzed for aromatic volatile organics (EPA 8020) and polynuclear aromatic hydrocarbons (EPA 8270 w/ SIM).

> ENVIRONMENTAL MANAGEMENT AND CONSULTING

Ash Grove Cement Company Follow-Up Groundwater Monitoring 11 June 1993 Page 2

#### **FINDINGS**

Well elevations and water level data is given in Table 1. Groundwater elevation contours are plotted on Figure 1. The depth to groundwater is 4-6 feet below ground surface. The groundwater contours suggest that the direction of local shallow groundwater flow is to the south/southeast. This is almost the opposite direction as measured in February, 1993, when the groundwater flow direction was to the northwest.

Pyrene, a common constituent of diesel fuel, was detected in the water from well MW-3 at 0.12 parts per billion (ppb). Water from the same well contained 790 ppm diesel fuel during the previous investigation in February.

No other contaminants were detected in any of the wells.

TABLE 1
WATER LEVEL MEASUREMENTS (1/8/93)

	Elevation -	Depth to	Groundwater
<u>Well #</u>	Top of Metal Casing	Groundwater*	<u>Elevation</u>
MW-1	100.00′	8.68′	91.32'
MW-2	99.22 <b>′</b>	8.62 <b>′</b>	90.60 <b>′</b>
MW-3	99.51	6.49′	93.02 <b>′</b>

Datum: Top of well casing - MW-1 (assumed 100.00')
\*Measured from top of metal well casing

TABLE 2
LABORATORY ANALYSIS

<u>ANALYSIS</u>	WELL MW-1	WELL MW-2	WELL MW-3	DETECTION LIMIT
BTEX PAH (Pyrene) Other PAH	ND ND	ND ND	ND 0.12	.50 .10
Compounds	ND	ND	ND	.1020

ND: None Detected

All values are given in parts per billion (ppb)

Analysis by Modified EPA Method 8015

Ash Grove Cement Company Follow-Up Groundwater Monitoring 11 June 1993 Page 3

#### DISCUSSION

The concentration of pyrene in well MW-3 (0.12 ppb) is well below the groundwater reference concentration of 1.0 ppm (1,000 ppb) per OAR 340-122-045. This situation is not required to be reported to DEQ.

The dramatic shift in groundwater flow direction is likely due to seasonal effects, and is not uncommon in areas such as this which are in close proximity to a major water body and where topography is flat. This back-and-forth groundwater flow could cause the contaminants in the groundwater to remain in this area for a longer period of time.

#### RECOMMENDATIONS

PBS recommends quarterly sampling of groundwater from the three wells to monitor levels of pyrene and other PAH compounds. Leak-detection monitoring can be performed at the same time, using Hydrocarbon Identification analysis (EPA 8015 Modified) to screen for heavy oil.

Please call me if you have any questions regarding this information.

Sincerely,

Erik Anderson, R.G.

Director of Environmental Services

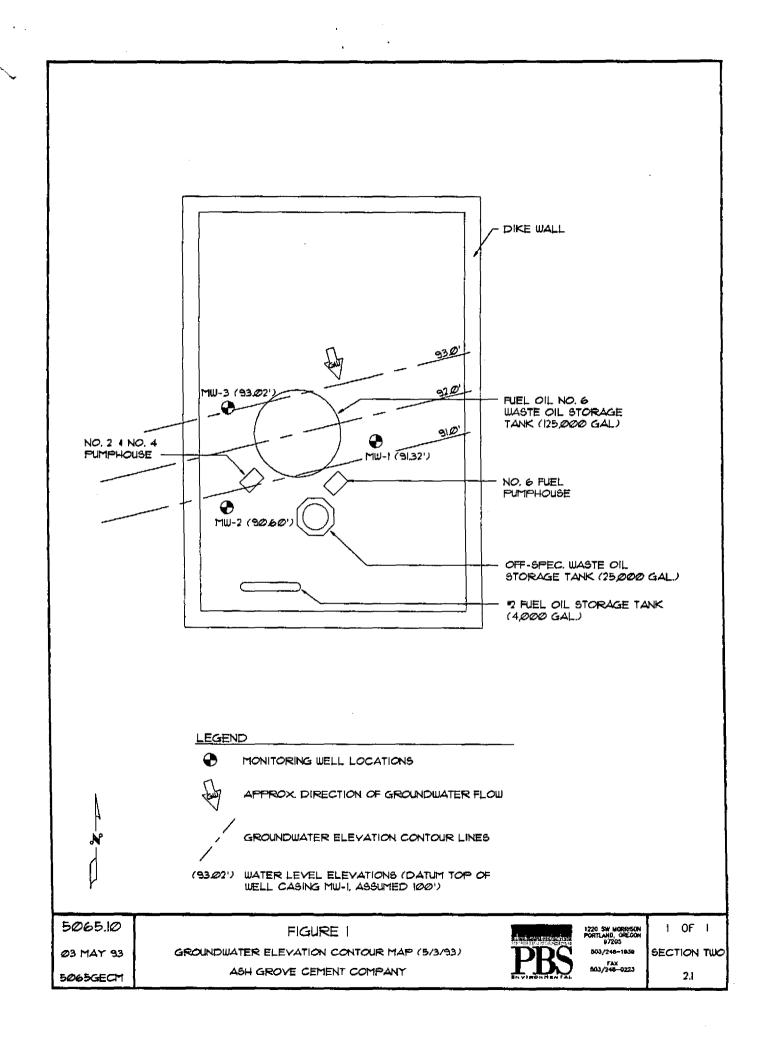
Attachments:

Site Plan

Laboratory Reports

Sample Chain of Custody Forms







May 12, 1993

PBS Environmental Building Consultants, Inc. 1220 S.W. Morrison Portland, OR 97205

Attn: Erik Anderson

Re: JOB #5065.10

PROJECT - ASH GROVE

PEL #93-1290

Enclosed is the lab report for your samples which were received on May 3, 1993.

#### I. Sample Description

Three Water Samples

The samples were received under a chain of custody.

The samples were received in containers consistent with EPA protocol.

#### II. Quality Control

No project specific QC was requested. In-house QC data is available upon request.

#### III. Analytical Results

Test methods may include minor modifications of published methods such as detection limits or parameter lists. Solid and waste samples are reported on an "as received" basis unless otherwise noted.

Compounds not detected are listed under results as ND.

Sincerely,

Howard Holmes Project Manager

Rob May

Project Manager

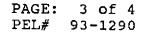


PAGE: 2 of 4 PEL# 93-1290

METHOD: BTEX per EPA 8020

<u>Analyte</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	Detection <u>Limit</u>
Benzene	ир	ND	ND	0.50
Ethylbenzene	ир	ND	ND	0.50
Toluene	ир	ND	ND	0.50
Xylenes (total)	ир	ND	ND	0.50
Date Prepped: Date Analyzed: Surrogate Recovery (%	05/04/93	05/04/93	05/04/93	Control
	05/04/93	05/04/93	05/04/93	<u>Limit</u>
4-Bromofluorobenzene	100	102	100	75-120

<u>Analyte</u>	Method <u>Blank</u>	Detection <u>Limit</u>
Benzene	ND	0.50
Ethylbenzene	ИD	0.50
Toluene	ND	0.50
Xylenes (total)	ND	0.50

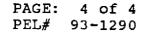




METHOD:

PAH's by EPA 8270-Modified GC/MS in SIM Mode. This method is equivalent to Method 8310 for Oregon UST Fuels Program, per Rick Gates, Oregon DEQ. Detection limits are from SIM analysis.

Analyte	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	Detection <u>Limit</u>
Acenaphthene	ND	ND	ND	0.10
Acenaphthylene	ND	ND	ND	0.10
Anthracene	ND	ND	ND	0.10
Benzo(a)anthracene	ND	ND	ND	0.10
Benzo(a)pyrene	ND	ND	ND	0.10
Benzo(b)fluoranthene	ND	ИĎ	ND	0.10
Benzo(g,h,i)perylene	ND	ND	ND	0.10
Benzo(k)fluoranthene	ИD	ND	ND	0.10
Chrysene	ND	ND	ND	0.10
Dibenzo(a,h)anthracene	ИD	ND	ND	0.10
Fluoranthene	ND	ND	ND	0.10
Fluorene	ND	ИД	ND	0.10
Indeno(1,2,3-cd)pyrene	ИD	ИD	ND	0.20
Naphthalene	ИD	ND	ND	0.10
Phenanthrene	ND	ND	ND	0.10
Pyrene	ND	ND	0.12	0.10
Date Prepped:	05/05/93	05/05/93	05/05/93	
Date Analyzed:		05/06/93		
			. ,	Control
Surrogate Recovery (%)				<u>Limit</u>
2-Fluorobiphenyl	63	91	85	43-116
Nitrobenzene-d5	61	90	81	35~114
p-Terphenyl-d14	84	114	104	33-141





METHOD: PAH's by EPA 8270-Modified GC/MS in SIM Mode. This method is equivalent to Method 8310 for Oregon UST Fuels Program, per Rick Gates, Oregon DEQ. Detection limits are from SIM analysis.

<u>Analyte</u>	Method <u>Blank</u>	Detection <u>Limit</u>
Acenaphthene	ND	0.10
Acenaphthylene	ND	0.10
Anthracene	ND	0.10
Benzo(a)anthracene	ND	0.10
Benzo(a)pyrene	ND	0.10
Benzo(b)fluoranthene	ИD	0.10
Benzo(g,h,i)perylene	ND	0.10
Benzo(k)fluoranthene	ND	0.10
Chrysene	ND	0.10
Dibenzo(a,h)anthracene	ND	0.10
Fluoranthene	ND	0.10
Fluorene	ND	0.10
Indeno(1,2,3-cd)pyrene	ND	0.20
Naphthalene	ND	0.10
Phenanthrene	ND	0.10
Pyrene	ND	0.10

PACIFIC ENVIRONMENTAL
 LABORATORY INC.

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PEL NO.	SAMPLE I.O.	DATE	TIME	PRESERV.		WAIER	OTHER NUMBER OF CONTAINERS	TPH : HCID OAN/DEO	QUANT, IF DETECTED (*)	TPH - Gasoline OAR/DEO	TPH · Diasal OAINDEO	TPH - 418.1 Modified OAR/DEO	8015M - Gas	80 ISM - Diesci	TPH 4181	BTEX 602/8020	Halogenated Votatiles 601/8010	Volatiles 624/8240	Semivolatiles 625/8270	PCB's 608/8080	Chlorinated Pasticidas 608/6080	TCLP (8) Matals	8270 (WISEM)						REMARKS		
	Ses Mw-1	5/493	<del></del>		1	<	4									X							XX								_
	MW-2 MW-3	1	1503 1540			(   X	4								ļ.,	X X							7					·	<u> </u>		_
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	NOUISHED BY		COMP	<u> </u>				•••	D/	ATE/T	IME				R	ECEIV	/ED E	ΙΥ					<i>U</i>		COMI	PANY	<del>,</del>				_ _

# WFR LABORATORIES, INC. Oregon Certified Lab #31 13035 SW PACIFIC HWY. TIGARD, OR 97223 503-639-9311 Fax 684-1588

Ash Grove Cement Attn: Gary Wright 13939 N. Rivergate Portland, OR 97203 Report # 22078

fax #: 289-2272

Chemical Laboratory Report \*\*\*\*\*\*\*\* 11/28/94 \*\*\*\*\*\*\*\*

Sample:

Discharge Water RUSH!

Collected: Received:

11/28/94 11/28/94

Analysis Method Results
\*\*\*\*\*\*\*

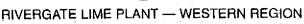
Turbidity 180.1 2.3 NTU

Settable Solids SM2540-F < 0.05 mls/L

Reviewed By:

Same State of the same of the

# ASH GROVE CEMENT COMPANY



13939 N. RIVERGATE BLVD. PORTLAND, OREGON 97203 PHONE 503-286-1677 FAX 503-289-2272 18-2

12-05-94

Sampled by:

Gary Wright

Quality and Process Engineer

Analysis Date:

11-28-94

Analysis Personnel:

a. Gary Wright

b. Water, Food, and Research Laboratories

Analytical Method:

Approved methods as outlined in "Standard Methods for the Examination

of Water and Wastewater."

pH:

Orion pH Meter

turbidity:

Nephelometric Method

suspended solids: TSS dried at 103-105 degrees centigrade

#### Results of such analysis:

GPM discharged:

2 GPM for 10 minute period

Suspended Solids:

< 0.05 mg/L

pH:

11.65

Turbidity:

2.3 NTU



May 14, 1998

Mr. Glenn Dollar Ash Grove Cement Co. P.O. Box 83007 Portland, Oregon 97283

RE: PROPOSAL FOR PROVIDING GROUNDWATER SAMPLING ASH GROVE CEMENT COMPANY 13939 N. RIVERGATE BLVD. PORTLAND, OREGON

Dear Mr. Dollar:

We are pleased to submit this proposal for groundwater sampling at the Ash Grove Cement Company Plant located at 13939 N. Rivergate Blvd., Portland, Oregon.

#### PROJECT BACKGROUND AND APPROACH:

In December 1992, PBS installed three groundwater monitoring wells around three above-ground oil storage tanks (one 125,000-gallon waste oil tank, one 25,000-gallon off-spec waste oil, and one 4,000-gallon diesel fuel). The purpose of the wells was to provide groundwater sampling points which were to serve as a leak detection system for the tanks.

Initial groundwater sampling indicated diesel-fraction petroleum hydrocarbons in groundwater from two of the wells (MW-1: 690 micrograms per liter -  $\mu$ g/l, MW-3: 790  $\mu$ g/l). Follow-up analysis for BTEX compounds and polynuclear aromatic hydrocarbons (PAH's) indicated 0.12  $\mu$ g/l pyrene in MW-3.

The purpose of the proposed groundwater monitoring is to collect additional data to determine whether concentrations of petroleum hydrocarbons and related constituents are increasing, decreasing, or remaining constant. This information, and information collected during future sampling events, will be used to determine whether the above-ground tanks are leaking product into the groundwater. It is understood that Ash Grove Cement may wish to test the groundwater approximately every two years.

ENVIRONMENTAL MANAGEMENT AND CONSULTING

1220 SW Morrison Street, Suite 600 Portland, OR 97205 503/248-1939 Fax 503/248-0223

ROGENE RICHLAND PORTLAND SHATTLE DENVER

Mr. Glenn Dollar

Re: Groundwater Sampling

May 14, 1998

Page 2

#### **SCOPE OF SERVICES:**

PBS will provide the following services:

- 1. Groundwater Sampling. PBS will measure water levels in the three wells (MW-1, MW-2 and MW-3), then purge each well of at least three well volumes. Wastewater will be stored onsite in a sealed and labeled container pending results of analysis and disposal by the client. Groundwater samples will be collected using a single-use disposable bailer, collected with minimal agitation and zero headspace in laboratory-provided clean containers. All samples will be delivered with chain-of-custody documentation to the project laboratory.
- 2. Laboratory Analysis. Groundwater samples will be tested for the presence of diesel fraction petroleum hydrocarbons by Northwest Method NWTPH-Dx, BTEX compounds by EPA Method 8020M and polynuclear aromatic hydrocarbons by EPA Method 8270 (SIM). PBS will carefully review the laboratory's quality control testing results to ensure reliability of the sample data.
- 3. Report. A report will be prepared describing the field procedures, results of analyses, laboratory reports and chain-of-custody documentation. The report will include a map of the site indicating the inferred direction of groundwater flow.

#### **FEE: Estimated Time and Materials**

PBS Labor \$800	
Laboratory Analysis;	
NWTPH-Dx (3 @ \$80 each) 240	
EPA 8020M (3 @ \$75 each)	
EPA 8270-SIM (3 @ \$220 each)	
Reimbursable Expenses (mileage, equipment, etc.)	
Total Estimated Project Costs: \$ 1,950	

PBS will not exceed this amount without prior approval of the client. All chargeable hours and reimbursable expenses directly related to this project will be billed per the attached General Terms and Conditions for Professional Services (rev. 5/97).

#### SCHEDULE:

We anticipate that our services can be started within 7 days of receipt of a signed copy of this proposal. The project will be completed within approximately 3 weeks from the start date. If desired, preliminary information can be provided as soon as it becomes available.

Mr. Glenn Dollar

Re: Groundwater Sampling

May 14, 1998

Page 3

This proposal and attachment comprise the entire agreement between the parties. This agreement may not be changed without the prior written consent of the parties. There are no terms and conditions that are not expressed in this agreement. This agreement and its terms and conditions may not be assigned without the prior written consent of the other party.

Please indicate acceptance of this agreement by returning a signed copy of this agreement or a purchase order incorporating the terms of the agreement to my attention.

We appreciate the opportunity to assist you on this project. Please contact me at (503) 417-7594 if you have any questions concerning our proposed scope of work or fees.

Sincerely,	ACCEPTED BY:	
5.01	Name	
Erik Anderson, R.G. Senior Geologist	Signature	
	Date	

Reviewer: Dem

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Attachment: General Terms and Conditions for Professional Services (rev. 5/97)

#### 6. GENERAL LIABILITY AND LIMITATION THEREOF

PBS agrees to hold the Client harmless and to indemnify and defend the Client for any and all loss, liabilities and damages, claims or action including attorney fees, due to bodily injury or property damage arising directly out of our negligent operational acts. PBS carries comprehensive general liability insurance which, subject to its limits, terms, and conditions, provides protection against liability arising out of bodily injury and property damage that is the direct result of any and all negligence. PBS will provide certificates evidencing such coverage listing Client as additional insured upon request.

#### 7. PROFESSIONAL LIABILITY AND LIMITATION THEREOF

This paragraph relates only to Professional Liability and not General Liability. In performing our professional services, we will use that standard of care and skill ordinarily recognized under similar circumstances by members of our profession in the state and region at the time the services are performed. No other warranty, either expressed or implied, is made in connection with our rendering of professional services.

#### 8. REPORTS AND PRESENTATIONS

The reports of PBS and its subconsultants are for the limited purpose of this contract. PBS will be responsible for its express conclusions and recommendations, but will not be responsible for the interpretation or use of its reports by third parties, without prior written approval by PBS. The Client shall indemnify, defend and hold harmless PBS and its subconsultants from any claims, damages, costs, losses and expenses, including but not limited to attorney fees and costs on arbitration, trial or appeal arising out of third party use of PBS's reports.

#### 9. <u>Samples</u>

All samples will be discarded 30 days after submission of our final report unless other arrangements are made.

#### 10. PAYMENTS TO CONSULTANT

Invoices will be submitted periodically for prior services. An account will become delinquent thirty days after date of billing. It is agreed that a late charge will be added to delinquent accounts at the rate of one-and-one-half percent (1-1/2%) for each thirty days delinquent (provided the rate of such late charge shall not exceed the maximum allowable by the laws of the state in which our office submitting the invoice is located).

#### 11. OTHER PROVISIONS

Neither party shall hold the other responsible for delay in performance caused by acts of God, strikes, lockouts, weather, accidents, or other events beyond the control of the other or the other's employees and agents.

One or more waivers by either party of any provision, term, condition or covenant, shall not be construed by the other party as a waiver of a subsequent breach of the same by the other party by providing written notice.

An opinion of abatement, remediation and restoration costs prepared by PBS represents our judgement as a professional. Since we have no control over the cost of labor and material, or over competitive bidding or market conditions, we do not guarantee the accuracy of our opinion as compared to contractor bids of actual cost to the Client.

It is understood and agreed by both parties that PBS, in performing professional services for the Client with respect to hazardous substances, will make recommendations to the Client but does not have the authority or responsibility to decide where disposal or treatment takes place, nor to designate how or by whom the hazardous substances are to be transported for disposal or treatment. It is understood that PBS is not the generator and does not own the hazardous waste discovered, handled or removed from the owner's property.

In the event there is a dispute between PBS and the Client concerning the performance of any provision in this agreement, the losing party shall pay the prevailing party reasonable attorney's fees and costs on trial or appeal. In addition, Client agrees to pay PBS for all employee time, costs, and witness costs incurred for collection activity.

This agreement can be terminated at any time by either party.

#### 12. STANDARD OF CARE

PBS's services are conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession practicing in a similar geographical area under similar conditions (i.e. PBS utilizes sampling protocols which are generally accepted and informative means of conducting investigations. However, these protocols may not result in conclusions with 100% certainty). This standard of care shall be determined as of the time PBS performs its services and not as of any other time. No other warranty, express or implied, is made. PBS's interpretations and recommendations will be based solely on information which is made available to PBS by the Owner or by the results of samples, surveys or other investigations performed by PBS. By entering into this agreement, PBS represents that all personnel to be assigned to perform the work described in this project are fully qualified to perform the work to which they are assigned in a competent and professional manner. PBS's professional services shall incorporate and comply with those federal, state and local laws, regulations, codes and standards that are applicable at the time PBS renders it's services.



June 22, 1998

Mr. Glenn Dollar Ash Grove Cement Company 13939 N. Rivergate Blvd. Portland, Oregon 97203

> Report of Findings Groundwater Monitoring - May 1998 Ash Grove Cement Lime Plant PBS Project #12730.00

#### 1.0 INTRODUCTION AND BACKGROUND

The following report presents the results of the recent round of groundwater sampling at the Ash Grove Cement Company Lime Plant at 13939 N. Rivergate Boulevard, Portland, Oregon. The purpose of the investigation was to monitor the groundwater quality in the tank farm area to identify potential leakage from the tanks into the shallow groundwater.

The tank farm consists of one 420,000-gallon waste oil tank, one 25,000-gallon off-spec waste oil tank, and one 4,000-gallon #2 fuel oil tank. All tanks are above-ground, located within an area enclosed within a dike consisting of a 4-foot high concrete wall. The ground surface within the diked area is paved with concrete. The two larger tanks are oriented vertically and rest on flat concrete bases. The smaller tank is oriented horizontally and is mounted on concrete saddles. The 25,000-gallon tank had previously contained diesel fuel.

In December 1992, PBS installed three groundwater monitoring wells in the tank farm area, each to a depth of 15 feet. Groundwater samples collected from wells MW-1 and MW-3 contained 690 micrograms per liter ( $\mu$ g/l) and 790  $\mu$ g/l diesel-fraction petroleum hydrocarbons. Follow-up analysis of samples from the wells for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polynuclear aromatic hydrocarbons (PAHs) indicated the presence of pyrene in the water sample from well MW-3 at a concentration of 0.12  $\mu$ g/l. No other PAHs or BTEX were detected in any of the samples.

ENVIRONMENTAL MANAGEMENT AND CONSULTING

1220 SW Morrison Street, Suite 600 Portland, OR 97205 503/248-1939 Fax 503/248-0223

#### 2.0 MONITORING WELL SAMPLING AND ANALYSIS

PBS sampled the three monitoring wells on May 27, 1998, with the assistance of Glenn Dollar, Ash Grove Cement Company.

Prior to purging, static water levels were measured in each well using an electronic water level indicator. Each well was purged using a dedicated disposable polyethylene bailer. Physical and chemical parameters (temperature, conductivity, pH) were measured after removal of each well volume to assess stability of the parameters, which serve to indicate whether uniformity has been achieved, and all "non-representative" groundwater has been purged from the well. Upon achieving less than 10% variation between parameters over three consecutive well volumes, the groundwater at the well was considered to be representative of local groundwater conditions, and the well was sampled.

Groundwater samples were collected from the bailers and placed into laboratory-furnished sample containers. Water samples were analyzed for BTEX (EPA Method 8020M), PAHs (EPA Method 8270 SIM mode), and Total Petroleum Hydrocarbons (Northwest Method NWTPH-HCID). The samples were placed in an ice chest and transported by hand, under sample chain of custody, to North Creek Analytical Laboratories, Beaverton, Oregon.

All purged water was placed in a 55-gallon steel open-top drum and left on-site for later disposal.

#### 3.0 GROUNDWATER FLOW DIRECTION

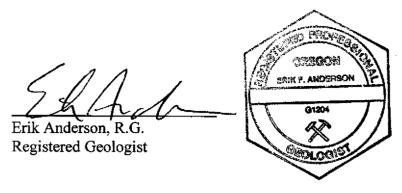
Based on the relative elevations of the piezometric surface between the three wells, groundwater is inferred to flow locally to the west, toward the Willamette River. Therefore, wells MW-2 and MW-3 are located in a hydraulically downgradient location from the three storage tanks.

#### 4.0 LABORATORY RESULTS

No BTEX, PAHs, or diesel or heavy oil range petroleum hydrocarbons were detected in any of the groundwater samples. A summary of the field measurements is presented in Table 1. A summary of the laboratory analyses is presented in Table 2.

#### 5.0 CONCLUSIONS

The laboratory analyses indicate that no petroleum hydrocarbons, BTEX, or PAHs are present in the groundwater at concentrations above their detection limits. Continued periodic sampling of groundwater is recommended as a means of detecting leakage from the base of the tanks.



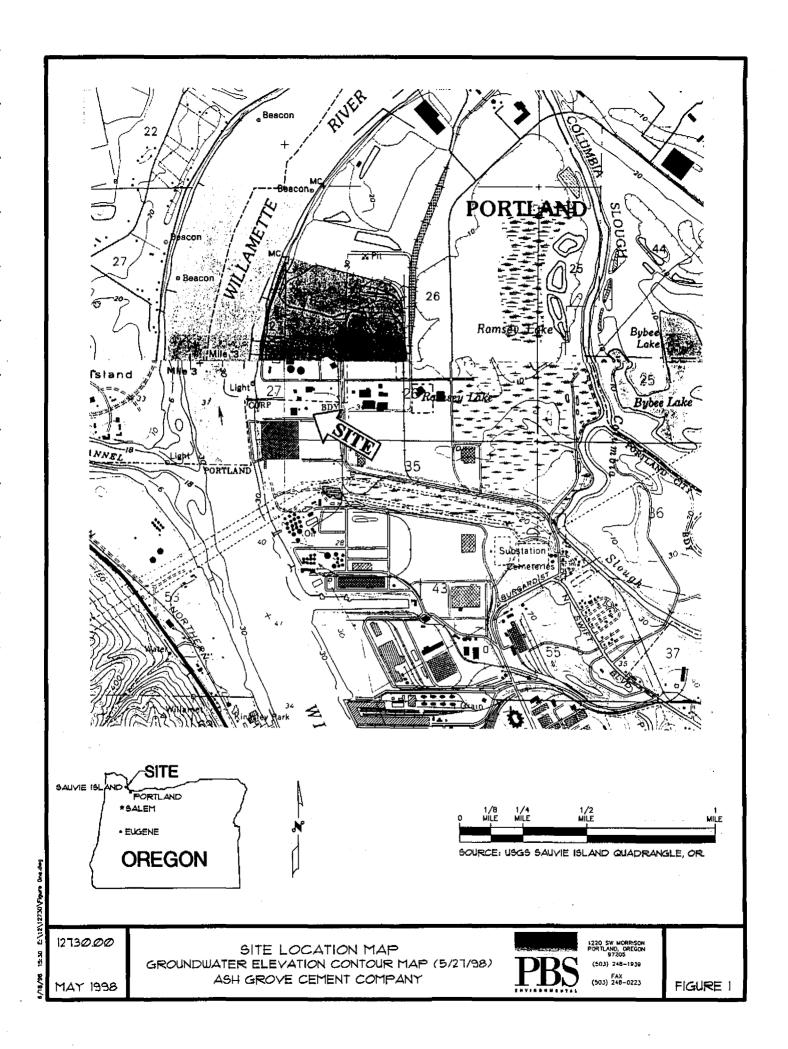
Attachments: Table 1 - Monitoring Well Data Summary

Table 2 -Laboratory Results of Groundwater Analysis

Figure 1 - Site Location Map

Figure 2 - Groundwater Elevation Contour Map (5/27/98)

Laboratory Report and Sample Chain of Custody



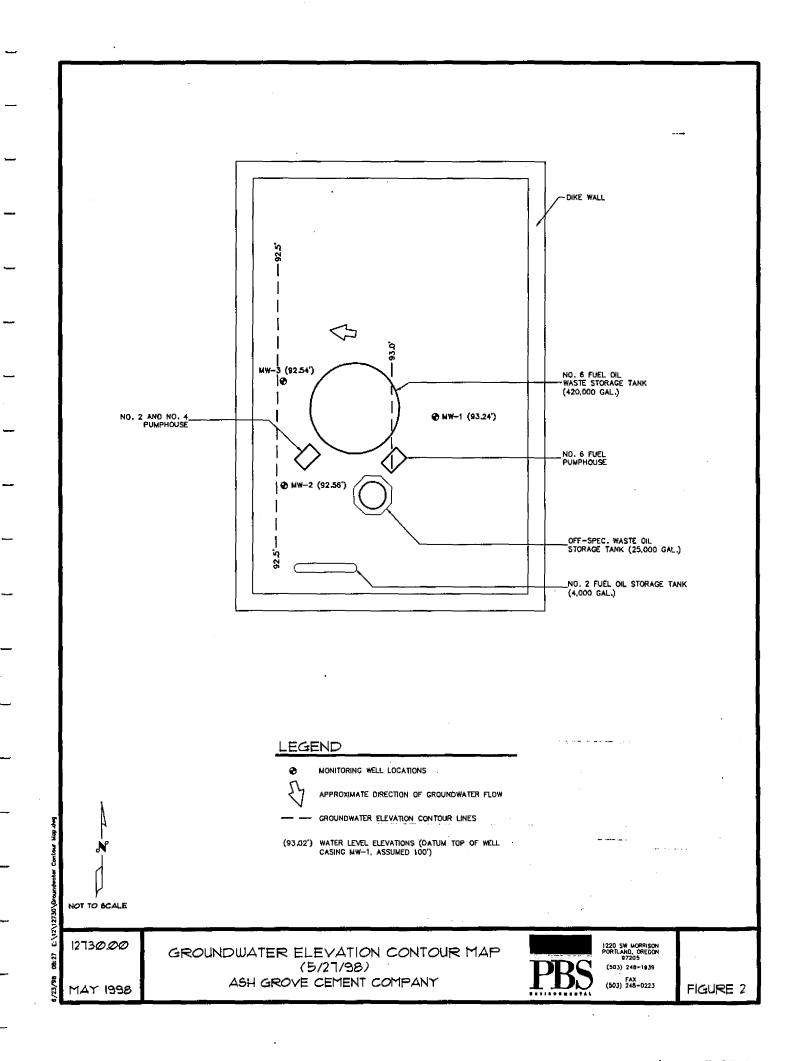


Table 1
Monitoring Well Data Summary

Monitor Well	Screened Inter-	r- Diameter	Total Depth of	Depth to	o Water	Top of Casing	Groundwater Elevation	
	val <sub>(s)</sub>	(inches)	Well	Date	Depth <sub>(b)</sub>	Elev.(c)	Date	Elev.
MW-1	10-15	2	15	05/27/98	6.76	100.00	05/27/98	93.24
MW-2	10-15	2	15	05/27/98	6.64	99.20	05/27/98	92.56
MW-3	10-15	2	15	05/27/98	6.99	99.53	05/27/98	92.54

- (a) Feet below ground surface
- (b) Feet below top of well casing
- (c) Datum: Top of well casing MW-1, assumed 100.00 feet.

<u>Table 2</u>
Laboratory Results of Groundwater Analysis

	San	D1-4		
	MW-1	MW-2	MW-3	Regulatory Level (1)
Sample Date	05/27/98	05/27/98	05/27/98	
<u>Total Petroleum</u> <u>Hydrocarbons<sub>(2)</sub></u>	ND	ND	ND	NE
Volatile Organics <sub>(3)</sub> (μg/l) Benzene Toluene Ethylbenzene Xylenes	<0.5 <0.5 <0.5 <1.0	<0.5 <0.5 <0.5 <1.0	<0.5 <0.5 <0.5 <1.0	5 1,000 700 10,000
Polynuclear Aro- matic Hydrocar- bons <sub>(4)</sub>	ND	ND	ND	Varies

ND: Not detected above the Reporting Limit

NE: Cleanup Levels not established

- (1) Based on Oregon Underground Storage Tank Groundwater Cleanup Levels (OAR 340-122-242(4))
- (2) Northwest Method NWTPH-Dx
- (3) EPA Method 8020M
- (4) EPA Method 8270 SIM Mode

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 684-0447

Eric Anderson PBS Environmental 1220 SW Morrison Portland, OR 97205

Date: 06/10/1998

AEN Account No.: 90064 AEN Job Number: 98.01323

Project: Ash Grove Location: 12730.00

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample		Matrix	Date	Date
Number	Sample Description	Туре	Taken	Received
103951	MW-1	Water	05/27/1998	05/28/1998
103952	MW-2	Water	05/27/1998	05/28/1998
103953	MW - 3	Water	05/27/1998	05/28/1998

Approved by:

Jenna Gorham Project Manager

AEN, INC.

ma

Technical Review AEN, INC.

The results from these samples relate only to the items tested. This report shall not be reproduced, except in full, without the written approval of the laboratory.

# ANALYTICAL REPORT

Eric Anderson PBS Environmental 1220 SW Morrison Portland, OR 97205 06/10/1998

Job No.: 98.01323

Page: 2

Project Name: Date Received: Ash Grove 05/28/1998

Sample Number

Sample Description

103951

MW - 1

PARAMETERS	<u>METHODS</u>	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
BTEX (W)						
Dilution Factor	8020	1			05/29/1998	
Benzene	8020	ND	0.5	ug/L	05/29/1998	
Toluene	8020	ND	0.5	ug/L	05/29/1998	
Ethyl Benzene	8020	ND	0.5	ug/L	05/29/1 <del>99</del> 8	
Xylenes, total	8020	ND	1.5	ug/L	05/29/1998	
PAH BY GC/MS SIM PREP		-			06/01/1998	
PAH BY GC/MS SIM (W)						
Dilution Factor	8270M	1.			06/02/1998	
Naphthalene	8270M	ND	0,1	ug/L	06/02/1998	
Acenapthylene	8270M	ND	0.1	ug/L	06/02/1998	
Acenaphthene	8270M	ND	0.1	ug/L	06/02/1998	
Fluorene	8270M	ND	0.1	ug/L	06/02/1998	
Phenanthrene	8270M	ND	0.1	ug/L	06/02/1998	
Anthracene	8270M	ND	0.1	ug/L	06/02/1998	
Fluoranthene	8270M	ND	0.1	ug/L	06/02/1998	
Pyrene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(a)anthracene	8270M	ND	0.1	ug/L	06/02/1998	
Chrysene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(b)fluoranthene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(k)fluoranthene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(a)pyrene	8270M	ND	0.1	ug/L	06/02/1998	
Indeno(1,2,3-cd)pyrene	8270M	ИD	0.1	ug/L	06/02/1998	
Dibenzo(a,h)anthracene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(g,h,i)perylene	8270M	ND	0.1	ug/L	06/02/1998	
NWTPH-Dx (W) Prep	NWTPH-Dx	_			06/02/1998	
NWTPH-Dx (W)						
Dilution Factor	NWTPH-Dx	1			06/02/1998	
Diesel Range Organics C10-C28	NWTPH-Dx	ND	0.25	mg/L	06/02/1998	
Heavy Oil Range (C28-C32)	NWTPH-Dx	ND	0.50	mg/L	06/02/1998	

American Environmental Network, Inc. (503) 684-0447 (503) 620-0393 FAX 17400 SW Upper Boones Perry Rd., Suite 270, Portland, OR 97224

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

# ANALYTICAL REPORT

Eric Anderson PBS Environmental 1220 SW Morrison Portland, OR 97205 06/10/1998

Job No.: 98.01323

Page: 3

Project Name: Date Received: Ash Grove 05/28/1998

Sample Number

Sample Description

103952

MW-2

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
BTEX (W)						
Dilution Factor	8020	1			05/29/1998	
Benzene	8020	NĎ	0.5	ug/L	05/29/1998	
Toluene	8020	ND	0.5	ug/L	05/29/1998	
Ethyl Benzene	8020	ND	0.5	ug/L	05/29/1998	
Xylenes, total	8020	ND	1.5	ug/L	05/29/1998	
PAH BY GC/MS SIM PREP		-			06/01/1998	
PAH BY GC/MS SIM (W)						
Dilution Factor	8270M	1			06/02/1998	
Naphthalene	8270M	ND	0.1	ug/L	06/02/1998	
Acenapthylene	8270M	ND	0.1	ug/L	06/02/1998	
Acenaphthene	8270M	ND	0.1	ug/L	06/02/1998	
Fluorene	8270M	ND	0.1	ug/L	06/02/1998	
Phenanthrene	8270M	ND	0.1	ug/L	06/02/1998	
Anthracene	8270M	ДИ	0.1	ug/L	06/02/1998	
Fluoranthene	8270M	ND	0.1	ug/L	06/02/1998	
Pyrene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(a)anthracene	8270M	ND	0.1	ug/L	06/02/1998	
Chrysene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(b)fluoranthene	8270M	ND .	0.1	ug/L	06/02/1998	
Benzo(k) fluoranthene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(a)pyrene	8270M	ND	0.1	ug/L	06/02/1998	
Indeno(1,2,3-cd)pyrene	8270M	ND	0.1	ug/L	06/02/1998	
Dibenzo(a,h)anthracene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(g,h,i)perylene	8270M	ND	0.1	ug/L	06/02/1998	
NWTPH-Dx (W) Prep	NWTPH-Dx	-			06/02/1998	
NWTPH-Dx (W)						
Dilution Factor	NWTPH-Dx	1			06/02/1998	
Diesel Range Organics Cl0-C28	NWTPH-Dx	ND	0,25	mg/L	06/02/1998	
Heavy Oil Range (C28-C32)	NWTPH-Dx	ND	0.50	mg/L	06/02/1998	

American Environmental Network, Inc. (503) 684-0447 (503) 620-0393 FAX 17400 SW Upper Boones Ferry Rd., Suite 270, Portland, OR 97224

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

## ANALYTICAL REPORT

Eric Anderson PBS Environmental 1220 SW Morrison . Portland, OR 97205 06/10/1998

Job No.: 98.01323

\*Page: 4

Project Name: Ash Grove Date Received: 05/28/1998 Project Name:

Sample Number

Sample Description

103953

MW-3

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
BTEX (W)						
Dilution Factor	8020	1			06/01/1998	
Benzene	8020	ND	0.5	ug/L	06/01/1998	
Toluene	8020	ND	0.5	ug/L	06/01/1998	
Ethyl Benzene	8020	ND	0.5	ug/L	06/01/1998	
Xylenes, total	8020	ND	1.5	ug/L	06/01/1998	
PAH BY GC/MS SIM PREP		-			06/01/1998	
PAH BY GC/MS SIM (W)						
Dilution Factor	8270M	1			06/02/1998	
Naphthalene	8270M	ND	0.1	ug/L	06/02/1998	
Acenapthylene	8270M	ND	0.1	ug/L	06/02/1998	•
Acenaphthene	8270M	ND	0.1	ug/L	06/02/1998	
Fluorene	8270M	ND	0.1	ug/L	06/02/1998	
Phenanthrene	8270M	ND	0.1	ug/L	06/02/1998	
Anthracene	8270M	ND	0.1	ug/L	06/02/1998	
Fluoranthene	8270M	ND	0.1	ug/L	06/02/1998	
Pyrene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(a)anthracene	8270M	ND	0.1	ug/L	06/02/1998	
Chrysene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(b)fluoranthene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(k)fluoranthene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(a)pyrene	8270M	ND	0.1	ug/L	06/02/1998	
Indeno(1,2,3-cd)pyrene	8270M	ND	0.1	ug/L	06/02/1998	
Dibenzo(a,h)anthracene	8270M	ND	0.1	ug/L	06/02/1998	
Benzo(g,h,i)perylene	8270M	ND	0.1	ug/L	06/02/1998	
NWTPH-Dx (W) Prep	NWTPH-Dx	-			06/02/1998	
NWTPH-Dx (W)						
Dilution Factor	NWTPH-Dx	1			06/02/1998	
Diesel Range Organics C10-C28	NWTPH-Dx	ND	0.25	mg/L	06/02/1998	
Heavy Oil Range (C28-C32)	NWTPH-Dx	ND	0.50	mg/L	06/02/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

American Environmental Network, Inc. (503) 684-0447 (503) 620-0393 FAX 17400 SW Upper Boones Ferry Rd., Suite 270, Portland, OR 97224

# SURROGATE REPORT

Eric Anderson PBS Environmental 1220 SW Morrison Portland, OR 97205

06/10/1998 Job No.: 98.01323

Page: 5

Project Name: Ash Grove Date Received: 05/28/1998

SURROGATES		METHODS	RESULTS		DATE ANALYZED	FLAG
Sample Number	Sample MW-1	Description				
aaa-TFT (Surr.)		8020	103	ŧ	05/29/1998	
Nitrobenzene-d5 (Su	rr.)	8270M	76	ŧ	06/02/1998	
2-Fluorobiphenyl (Se	arr.)	8270M	78	8	06/02/1998	
Terphenyl-dl4 (Surr	.)	8270M	70	*	06/02/1998	
o-terphenyl (Surr.)		NWTPH-Dx	59	*	06/02/1998	
Sample Number	Sample MW-2	Description				
aaa-TFT (Surr.)		8020	106	ŧ	05/29/1998	
Nitrobenzene-d5 (Su	rr.)	8270M	78	¥	06/02/1998	
2-Fluorobiphenyl (S	urr.)	8270M	87	*	06/02/1998	
Terphenyl-d14 (Surr	.)	8270M	84	ŧ	06/02/1998	
o-terphenyl (Surr.)		NWTPH-Dx	71	ŧ	06/02/1998	
Sample Number 103953	Sample MW-3	Description				
aaa-TFT (Surr.)		8020	99	ł	06/01/1998	
Nitrobenzene-d5 (Su	rr.)	8270M	68	*	06/02/1998	
2-Fluorobiphenyl (S	urr.)	8270M	77	ŧ	06/02/1998	
Terphenyl-d14 (Surr	.)	8270 <b>M</b>	79	ŧ	06/02/1998	
o-terphenyl (Surr.)		NWTPH-Dx	71	*	06/02/1998	

# QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

PBS Environmental 1220 SW Morrison Portland, OR 97205 Date: 06/10/1998

Job Number: 98.01323

Contact: Eric Anderson Project: Ash Grove

	CCV			
	True	Concentration	Percent	Date
Analyte	Concentration	Found	Recovery	Analyzed
BTEX (W)				
Benzene	40.0	36.8	92.0	05/29/1998
Toluene	40.0	36.7	91.8	05/29/1998
Ethyl Benzene	40.0	36.8	92.0	05/29/1998
Xylenes, total	120	112	93.3	05/29/1998
aaa-TFT (Surr.)	100	97	97.0	05/29/1998
PAH BY GC/MS SIM (W)				
Naphthalene	1.0	1.19	119.0	06/02/1998
Acenapthylene	1.0	0.97	97.0	06/02/1998
Acenaphthene	1.0	0.96	96.0	06/02/1998
Fluorene	1.0	0.92	92.0	06/02/1998
Phenanthrene	1.0	0.96	96.0	06/02/1998
Anthracene	1.0	0.98	98.0	06/02/1998
Fluoranthene	1.0	0.98	98.0	06/02/1998
Pyrene	1.0	0.96	96.0	06/02/1998
Benzo (a) anthracene	1.0	1.02	102.0	06/02/1998
Chrysene	1.0	0.95	95.0	06/02/1998
Benzo(b) fluoranthene	1.0	1.05	105.0	06/02/1998
Benzo(k)fluoranthene	1,0	0.99	99.0	06/02/1998
Benzo (a) pyrene	1.0	1.06	106.0	06/02/1998
Indeno(1,2,3-cd)pyrene	1.0	0.93	93.0	06/02/1998
Dibenzo(a,h)anthracene	1.0	0.92	92.0	06/02/1998
Benzo(g,h,i)perylene	1.0	0,91	91.0	06/02/1998
NWTPH-Dx (W)				
Diesel Range Organics C10-C28	404	390	96.5	06/02/1998
Heavy Oil Range (C28-C32)	408	450	110.3	06/02/1998
NWTPH-Dx (W)				
Diesel Range Organics C10-C28	404	366	90.6	06/02/1998
Heavy Oil Range (C28-C32)	408	438	107.4	06/02/1998

CCV - Continuing Calibration Verification

American Environmental Network, Inc. (503)684-0447 (503)620-0393 FAX 17400 SW Upper Boones Ferry Rd., Suite 270, Portland, OR 97224

#### QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

PBS Environmental 1220 SW Morrison Portland, OR 97205 Date: 06/10/1998

Job Number: 98.01323

Contact: Eric Anderson Project: Ash Grove

	LCS				
	True	Concentration	LCS		Date
Analyte	Concentration	Found	% Recovery	Flags	Analyzed
PAH BY GC/MS SIM (W)					
Naphthalene	1.0	0.03	83.0		06/02/1998
Acenapthylene	1.0	0.87	87.0		06/02/1998
Acenaphthene	1.0	0,89	89.0		06/02/1998
Fluorene	1.0	0.87	87.0		06/02/1998
Phenanthrene	1.0	0.93	93.0		06/02/1998
Anthracene	1.0	0.91	91.0		06/02/1998
Fluoranthene	1.0	0.95	95.0		06/02/1998
Pyrene	1.0	1.02	102.0		06/02/1998
Benzo(a) anthracene	1,0	0.96	96.0		06/02/1998
Chrysene	1.0	0.96	96.0		06/02/1998
Benzo(b) fluoranthene	1,0	1.06	106.0		06/02/1998
Benzo(k) fluoranthene	1.0	1.00	100.0		06/02/1998
Benzo(a)pyrene	1.0	0.98	98.0		06/02/1998
Indeno(1,2,3-cd)pyrene	1.0	1.03	103.0		06/02/1998
Dibenzo(a,h)anthracene	1.0	1.00	100.0		06/02/1998
Benzo(g,h,i)perylene	1.0	1.07	107.0		06/02/1998
PAH BY GC/MS SIM (W)					
Naphthalene	1.0	0.91	91.0		06/02/1998
Acenapthylene	1,0	0.94	94.0		06/02/1998
Acenaphthene	1.0	0.95	95.0		06/02/1998
Fluorene	1.0	0.90	90.0		06/02/1998
Phenanthrene	1.0	0.95	95.0		06/02/1998
Anthracene	1.0	0.94	94.0		06/02/1998
Fluoranthene	1.0	0.98	98.0		06/02/1998
Pyrene	1.0	1.03	103.0		06/02/1998
Benzo (a) anthracene	1.0	1.00	100.0		06/02/1998
Chrysene	1.0	0.98	98.0	•	06/02/1998
Benzo(b) fluoranthene	1.0	1.05	105.0		06/02/1998
Benzo(k) fluoranthene	1.0	i,01 -	101.0		06/02/1998

LCS - Laboratory Control Standard

American Environmental Network , Inc. (503)684-0447 (503)620-0393 FAX 17400 SW Upper Boones Ferry Rd., Suite 270, Portland OR 97224

PBS Environmental 1220 SW Morrison Portland, OR 97205 Date: 06/10/1998

Job Number: 98.01323

Eric Anderson Ash Grove Contact:

Project:

	LCS				
	True	Concentration	LCS		Date
Analyte	Concentration	Found	& Recovery	Flags	Analyzed
Benzo(a)pyrene	1.0	1.00	100.0		06/02/1998
Indeno(1,2,3-cd)pyrene	1.0	1.05	105.0		06/02/1998
Dibenzo (a, h) anthracene	1.0	1.02	102.0		06/02/1998
Benzo(g,h,i)perylene	1.0	1.09	109.0		06/02/1998
NWTPH-Dx (W)					
Diesel Range Organics Cl0-C28	2.540	1.600	63.0		06/02/1998
NWTPH-Dx (W)					
Diesel Range Organics C10-C28	2.540	1.740	69.5		06/02/1998
Benzo(g,h,i)perylene NWTPH-Dx (W) Diesel Range Organics Cl0-C28 NWTPH-Dx (W)	1.0	1.09	109.0		06/02/1998

LCS - Laboratory Control Standard

(503)620-0393 FAX American Environmental Network , Inc. (503)684-0447 17400 SW Upper Boones Ferry Rd., Suite 270, Portland OR 97224

# OUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

PBS Environmental 1220 SW Morrison Portland, OR 97205 Date: 06/10/1998

Job Number: 98.01323

Contact: Eric Anderson Project: Ash Grove

Analyte	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD	Flags
BTEX (W)											
Benzene	37.4	ND	40.0	ug/L	93.5	37.1	40.0	ug/L	92.8	0.8	
Toluene	38.1	ND	40.0	ug/L	95.3	37.5	40.0	ug/L	93.8	1.6	
Ethyl Benzene	37.8	ND	40.0	ug/L	94.5	37.6	40.0	ug/L	94.0	0.5	
Xylenes, total	115	ND	120	ug/L	95.8	114	120	ug/L	95.0	0.8	

QC Sample:

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike

MSD - Matrix Spike Duplicate

RPD = Relative Percent Difference

dil. = Diluted Out

American Environmental Network, Inc. (503)684-0447 (503)620-0393 FAX 17400 SW Upper Boones Ferry Rd., Portland, OR 97224

### QUALITY CONTROL REPORT BLANKS

PBS Environmental 1220 SW Morrison Portland, OR 97205 Date: 06/10/1998

Job Number: 98.01323

Contact: Eric Anderson Project: Ash Grove Location: 12730.00

	Blank	Report		Date	
Analyte	Analysis	Limit	Units	Analyzed	
BTEX (W)					
Dilution Factor	1			05/29/1998	
Benzene	ND	0.5	ug/L	05/29/1998	
Toluene	ND	0.5	ug/L	05/29/1998	
Ethyl Benzene	ND	0.5	ug/L	05/29/1998	
Xylenes, total	ND	1.5	ug/L	05/29/1998	
aaa-TFT (Surr.)	104		ł	05/29/1998	
PAH BY GC/MS SIM (W)					
Naphthalene	ND	0.1	ug/L	06/02/1998	
Acenapthylene	ND	0.1	ug/L	06/02/1998	
Acenaphthene	ND	0.1	ug/L	06/02/1998	
Fluorene	ND	0.1	ug/L	06/02/1998	
Phenanthrene	ND	0.1	ug/L	06/02/1998	
Anthracene	ND	0.1	ug/L	06/02/1998	
Fluoranthene	ND	0.1	ug/L	06/02/1998	
Pyrene	ND	0.1	ug/L	06/02/1998	
Benzo(a)anthracene	ND	0.1	ug/L	06/02/1998	
Chrysene	NĐ	0.1	ug/L	06/02/1998	
Benzo(b)fluoranthene	ND	0.1	ug/L	06/02/1998	
Benzo(k)fluoranthene	ND	0.1	ug/L	06/02/1998	
Benzo(a)pyrene	МD	0.1	ug/L	06/02/1998	
Indeno(1,2,3-cd)pyrene	ND	0.1	ug/L	06/02/1998	
Dibenzo(a,h)anthracene	ND	0.1	ug/L	06/02/1998	
Benzo(g,h,i)perylene	ND	0.1	ug/L	06/02/1998	
Nitrobenzene-d5 (Surr.)	77		*	06/02/1998	
2-Fluorobiphenyl (Surr.)	86		*	06/02/1998	

American Environmental Network, Inc. (503)684-0447 (503)620-0393 FAX 17400 SW Upper Boones Ferry Rd., Portland, OR 97224

# QUALITY CONTROL REPORT BLANKS

PBS Environmental 1220 SW Morrison Portland, OR 97205 Date: 06/10/1998

Job Number: 98.01323

Contact: Eric Ander Project: Ash Grove Location: 12730.00 Eric Anderson

Analyte	Blank Analysis	Report Limit	Units	Date Analyzed
Terphenyl-dl4 (Surr.) NWTPH-Dx (W)	101		*	06/02/1998
Diesel Range Organics C10-C28	ND	0.25	mg/L	06/02/1998
Heavy Oil Range (C28-C32)	ND	0.50	mg/L	06/02/1998
o-terphenyl (Surr.)	70		ŧ	06/02/1998

American Environmental Network; Inc. (503)684-0447 - (503)620-0393 FAX 17400 SW Upper Boones Ferry Rd., Portland, OR 97224

#### QUALITY CONTROL REPORT DUPLICATES

PBS Environmental 1220 SW Morrison Portland, OR 97205 Date: 06/10/1998

Job Number: 98.01323

Contact: Eric Anderson Project: Ash Grove

Analyte	Original Analysis	Duplicate Analysis	Units	RPD	Date Analyzed	Flag
NWTPH-Dx (W)						
Dilution Factor	1	1		0.0	06/02/1998	
Diesel Range Organics C10-C28	NĐ	ND	mg/L		06/02/1998	
Heavy Oil Range (C28-C32)	ND	ND	mg/L		06/02/1998	

NOTE: Duplicates may not be samples from this job.

RPD - Relative Percent Difference

#### FLAG GLOSSARY

This sample does not have a typical gasoline pattern. This sample does not have a typical diesel pattern. 91 Analyte found in the associated blank as well as the sample. The sample contains a lighter hydrocarbon than gasoline. CN See case narrative CS Outside control limits or unusual matrix: see case parrative. D The sample extends to a heavier hydrocarbon range than gasoline. Results on a dry weight basis d DIL Result was calculated from dilution. The sample extends to a lighter hydrocarbon range than diesel. Е F The sample extends to a heavier hydrocarbon range than diesel.  $\alpha$ The positive result for gasoline is due to single component comtamination. The oil pattern for this sample is not typical. т The result for this compound is an estimated concentration. The LCS recovery exceeded control limits. See the LCS page of this report. The LCS recovery exceeded control limits; the MS/MSD were in control validating the batch. LM MS and/or MSD percent recovery exceeds control limits. MD Unable to calculate MS/MSD recovery due to high amount of analyte; greater than 4 times spike level. The MS/MSD RPD is greater than method critera. The sample was re-extracted and re-analyzed with similar results indicating a non-homogeneous sample. MM The Matrix Spike exceeded control limits; LCS was in control validating the batch. MΙ Outside control limits due to matrix interference. N Manual integration performed on sample for quantification. Not Applicable. N/A NC Not calcuable. NO Not Analyzed. A post digestion spike was analyzed, and recoveries were within control limits. Detection limits elevated due to sample matrix. 01 Detection limits elevated due to high levels of non-target compounds. Sample(s) run at a dilution. The duplicate RPD was greater than 20%. The sample was re-extracted and re-analyzed with similar results. This indicates a matrix interference in the sample, likely a non-homogeneity of the sample. The duplicate RPD was greater than 20%. Visual inspection showed the sample to be non-homogeneous. R1. RΒ RPD not applicable for results less than five times the reporting limit. 다 The Relative Percent Difference (RPD) between two columns was greater than 40%, the higher result was reported. RI. The Relative Percent Difference (RPD) between two columns was greater than 40%, the lower result was reported due to obvious interference with the higher result. RP MS/MSD RPD is greater than 20% Surrogate recovery outside control limits. See the surrogate page of the report. SR SĎ Unable to quantitate surrogate due to sample dilution. SC Sample not provided to laboratory in proper sampling container. ν Volatile analysis was requested, sample container received with headspace. Х1 The duplicate RPD was greater than 20%. Due to insufficient sample, re-analysis was not possible.

Sample was analyzed outside recommended holding times.

The result for this parameter was greater than the TCLP regulatory limit.

The pattern seen for the parameter being analyzed is not typical.

Appendix65-000111

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Enter Public Water System ID # in boxes below:	PUBLICWA	GICAL ANALYSIS TER SUPPLIES ATER PROGRAM	EGOD PRODUCTS LANGUATION INC.
Mame of Water System:  ASH GROVE CEMENT  Address 13939 N. RIVERGATE BLUD- City Part LAND 97203 County MULT	LABORATOR' Total coliforms: Pre Fecal coliforms/E. coli: Pre 'See teck of pink copy for interpretation	esent' Absent	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-1099
Phone 286   6   7   7   98   7   1   1   1   1   1   1   1   1   1	Sampte invalid: resample immedial.  Leaked Ov Heavy non-coliform growth (as o	frient Agar + MUG ety er 30 hr old	Lab Cert # O R 0004/ Sample # 120/053  Bottle # 12/188
Return address for report:  Name		Copy Distribution: White Lab Yellow Health Division Pink Water System	Date & time analyzed:
Address City, state, zip		Form # 50-90 (Rev. 6/92) e/work/labslip	
Send results to: Oregon Health Division, P.O. Box 14350, Portler	nd OR 97214-0350 Phone (503) 73	s1-4 <b>3</b> 81	Analyst: BD 1:15  Review by: Oate: 12/2/98  Oate: 12/2/98



12003 N.E. Ainsworth Circle, Suite 105 • Portland, OR 97220 Office (503) 253-9136 • FAX (503) 253-9019 • 1-800-FPL-9555

ASH GROVE CEMENT CO. 13939 N RIVERGATE PORTLAND, OR 97203

12/24/98

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 12/22/98. Results and detection limits are in ppm (parts per million).

DESCRIPTION	NITRATE	SAMPLE#
WATER FROM LAB FAUCET, *	<5.0 ppm	1222009
DATE SAMPLE COLLECTED:	12/21/98 9:05 am	1222009
COLLECTED BY:	Alan Colburn	1222009
DATE RECEIVED:	12/22/98 10:00 am	1222009
METHOD:	EPA 300.0	1222009
TESTED BY:	D.R.	1222009
DATE TESTED:	12-23-98	1222009
STSTEM I.D. #:	4194453	1222009

MCL = Maximum contamination limit = 10ppm for Nitrate in drinking water.

THANK YOU

#### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105 PORTLAND, OREGON 97220 503-253-9136 / FAX 503-253-9019

OREGON ID#OR041 / WASHINGTON ID#OR042

To be Filled in by Person Submitting Sample:				
Public Water System Realty Transaction				
Pws ID #: 4144453 Source ID: Source Name: Well				
Public Water System or Property Owner Name:				
Ash Grove Cement Co.				
Address: 13939 N. Rivergate				
City, State, Zip: Portland, OR 97203				
sampled at: Lub Faucet sampled by: Alan Colburn				
Date collected: 12-21-98 Time collected: 9:05 A.M.				
Sample composition: Raw/Treated * Source/Distribution * Single/Combined				
To be Completed by Laboratory				
Date received in lab: 12-22-98 Date analyzed: 12-23-98				
Lab sampled ID #: 1222009   Sample composited in lab: Y/N				
Contaminant Code MCL mg/L Analysis mg/L Method Analyst				
Nitrate) 1040 10. <5.0 300,0 D.R.				
Nitrate/Nitrite 1038 10.				
Nitrite 1041 1.0				

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#### ASH GROVE CEMENT COMPANY

To: Gary Wright Date: July 6, 1998

From: Glenn Dollar Subject: Monthly Environmental

Report

On June 23, 1998 I received favorable results from ground water samples which were taken from our tank farm area. The purpose of the tests was to identify potential leakage from the tanks into the shallow groundwater. The laboratory analysis indicate that no petroleum hydrocarbons, BTEX, or PAHs are present in the groundwater at concentrations above their detection limits. I was glad to say the least, to see the favorable results. I was also aware of possible contamination based on tests which the same company and registered geologist performed in 1993. These results also indicate the previous contamination has remediated itself through natural attenuation which is very good to see.

Results from the source test on the #4 Ag mill proved to be less favorable. We now are required to submit a modification of are current permit and are considering options. There is some question about whether we have acceptible data for an evaluation which will be made with assumptions and whether these assumptions will be acceptible to the DEQ. I will be working on this task throughout the month of July and hope to see its completion sometime soon.

According to my best estimate we are not required to report to the EPA for the Emergency Planning and Community Right-to-Know Act (EPCRA). This is also referred to as a toxic chemical release inventory. We do not trigger any of the reporting thresholds. We still need to keep abreast of any changes in this act as the reporting requirements will continue to get more stringent.

To:

Gary Wright

From:

Glenn Dollar

Safety/Environmental Manager

Subject:

Environmental Report for April 1998

Many hours have been spent, not only by myself but also by many people in the Ash Grove system, on the many questions that arose over the receiving of oil that was out of our acceptable limits. The month of April saw a culmination of this work with the contacting of the DEQ and EPA on this matter. Ed Druback, Air Quality Manager for the NW Region for DEQ was contacted first. This was done not as a requirement but as a courtesy call to inform our local enforcement agency that we would be contacting the EPA to inform them of this occurrence. Dan Duncan, PCB coordinator for the EPA Region X in Seattle was the contact person I used for the EPA. I later faxed Dan testing information from the oil samples we took from the deliveries that were over acceptable limits. I also contacted Kathy Amidon, our permit writer at DEQ, so she would not feel left out of what was going on. She was very thankful to be included and I feel we are developing good communication channels between her and Rivergate. This matter is probably far from over as I expect to receive additional inquiries from the EPA.

Ash Grove Rivergate also got involved with some Earth Day Activities this month. On April 22 myself and some members of the yard department did some cleanup work on the riverbank along the Willamette River. We picked up about 550 pounds of garbage and I must say it was more physical work than I have done for some time. We had to park the loader and carry and drag much of the material to where it was. It was also a very warm day so I had the unfortunate experience of sweating while at work. I took some pictures of the cleanup and hope to include them in this months Rivergate Rumor.

On Tuesday, April 28, we performed, in the nick of time I might add, a source test at our #4 Ag mill location for the burning of landfill gas. The pollutants which we tested for were CO, NOx, SO2, and VOC. The preliminary results from the testing looked very good, although this wasn't accomplished without some initial headaches associated with the pulsing of the #4 burner.



# Food Products Laboratory, Inc. 12003 N.E. Ainsworth Circle Suite 107

ASH GROVE CEMENT CO. 13939 N RIVERGATE PORTLAND, OR

03/08/99

GLENN DOLLAR 503-286-1677 LIM NELSON

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 03/01/99. Bacterial results are in Colony Forming Units (CFU) per 100 ml. of water.

DESCRI	PTION	<b>POTABILITY</b>	NITRATE	SAMPLE#
WATER	- LABORATORY	ABS./ABS.	<0.1mg/L	0301034

MCL = Maximum contamination limit = 10mg/L for Nitrate in drinking water

THANK YOU

#### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105 PORTLAND, OREGON 97220 503-253-9136 / FAX 503-253-9019 OREGON ID#OR041 / WASHINGTON ID#OR042

To be Filled in by Person Submitting Sample:				
Public Water System  Realty Transaction				
Pws ID #: 4194453 Source ID: Source Name:				
Public Water System or Property Owner Name: ASh GROVE CEYNENT				
Address: 13939 N. RIVERAINTE BLUD.				
City, State, Zip: PORTLAND, OR 972-03				
Sampled at: LAD, Sampled by: ALAN COLBURN				
Date collected: 3-1-99 Time collected: 7:30 AM				
Sample composition: Raw Treated + Source/Distribution * Single Combined				
To be Completed by Laboratory				
Date received in lab: 3-1-99 Date analyzed: 3-3-99				
Lab sampled ID #: 6301034 Sample composited in lab: Y(N)				
Contaminant Code MCL mg/L Analysis mg/L Method Analyst				
Nitrate 1040 10. (O.1 EPA 300.0 CAPEL				
Nitrate/Nitrite 1038 10. #*OO(\				
Nitrite 1041 1.0				

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#### FOOD PRODUCTS LABORATORY, INC.

To be Filled in by Person Submi	itting Sample:
Public Water System 🕱	Realty Transaction [
Pws ID #: 4194453 Source ID:	Ol Source Name: Well
Public Water System or Property	y Owner Name: ASh GROVE CEMENT
·	AHNEGLEUN DOLLAR
Address:	13939 NO RIVERGATE
City, State, Zip:	PHD OR 97203
Sampled at: LADORATORY	Sampled by: ALAN COLDURN
Date collected: 6-1-99	Time collected: 9:20 AM
Sample composition: Raw Treated * Son	urce/Distribution * Single Combined
To be Completed by Laboratory	
Date received in lab: $06/01$	Date analyzed: 06/02/93
Lab sampled ID #: 0601086	Sample composited in lab: Y/N
Contaminant Code MCL mg/L	Analysis mg/L Method Analyst
Nitrate 1040 10.	20.5 mg/L EPA 300 D.R.
Nitrate/Nitrite 1038 10.	-
Nitrite	

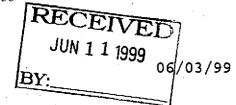
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### Food Products Laboratory, Inc.

12003 N.E. Ainsworth Circle, Suite 105 ● Portland, OR 97220 Office (503) 253-9136 ● FAX (503) 253-9019 ● 1-800-FPL-9555

ASH GROVE CEMENT CO. 13939 N RIVERGATE PORTLAND, OR 97203

GLENN DOLLAR 503-286-1677

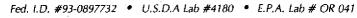


Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 06/01/99. Bacterial results are in Colony Forming Units (CFU) per 100 ml. of water.

<u>DESCRIPTION</u>	<b>POTABILITY</b>	NITRATE	 SAMPLE#
		er en	
WATER/6-1-99, 9:20AM	ABS./ABS.	< 0.5 mg/L	0601036

MCL = Maximum contamination limit = 10mg/L for Nitrate in drinking water.

THANK YOU





12003 N.E. Ainsworth Circle, Suite 105 • Portland, OR 97220 Office (503) 253-9136 • FAX (503) 253-9019 • 1-800-FPL-9555

ASH GROVE CEMENT CO. 13939 N RIVERGATE PORTLAND, OR 97203

08/30/00

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 08/21/00.

<b>DESCRIPTION</b>		<u>POTABILITY</u>	<u>NITRATE</u>	SAMPLE#
WATER FROM LAB		ABS./ABS.	0.02mg/L	0821009
FAUCET 8-21-00 8:0	05			
AM				

MCL = Maximum contamination limit = 10mg/L for Nitrate in drinking water.

THANK YOU

Enter Public Water System ID # in boxes below:	PUBLIC WA	SICAL ANALYSIS ITER SUPPLIES ATER PROGRAM	Laboratory Name
Name of Water System:  ASN GOVE CEMENT  Oddress 13939 N. R. Vergate BIVI.  City Ortland County Mult.  Chone 286-1677  Collection date and time: 08 121 100 08: 00 am  Whom Day Year Hour Min Temperat date of initial positive  Collected by: Jeffet (Son complex)  Collected by: Jeffet (Son complex)  Collected Payer No Free Chlorine mg/ 20	LABORATOR' Total coliforms: Properties of pink copy for interpretation  Test Methods: Sample Properties of Propert	Y RESULTS  asent* DAbsent  asent* DAbsent  Also Fest  Con Ni-vates  A MMO-MUG  atrient Agar + MUG  ely  er 30 hr old	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-1099  Lab Cert # OROOUT Sample # OROOUT Bottle # Date & time received OROOUT Received by: Sample # OROOUT  Page & time analyzed: 8001 Control of the sample # OROOUT  Page & time analyzed:
Return address for report:  Name ASh Grove Cement		Copy Distribution: White Lab Yellow Health Division Pink Water System	Date & time analyzed:
Address (3939 N. Rivergate Bl. City, state, zip Portland OR 972		Form # 50-90 (Rev. 1/98) e:\work\labslip	Analyst: Date: 4/72/67 Review by: Date: 4-27

Enter Public Water System ID # In boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	Laboratory Name
Name of Water System:  ASM GOVE CAMENAN  Address 13939 N. R. Vergate BIVD.  City Oction of County Hold.  Phone 286-1677  Collection date and time: 08/21/00 09: 02 92  Worth Day Year Hour Man.  Type of sample: Whoutine: 0 *Repeat 0 Special  If repeat, date of initial positive  Collected by: 10 feet (15cm)  Sample point: 26 50 0 Free Chlorine mg/1 20	LABORATORY RESULTS  Total coliforms: "Present SAbsent Fecal coliforms Soot UPresent Alabant See back of pink copy of inseparation Alabant See back of pink copy of inseparation Alabant Alabant See back of pink copy of inseparation Alabant Alabant See back of pink copy of inseparation Alabant Alabant See back of pink copy of inseparation Alabant Alab	FOOD PRODUCTS LABOR TORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR, 97220-1099  Lab Cert * (2000) 4 Sample * (2000) 4 Sample * (2000) 4 Death & diffe Incorrect 5 (2000) 4 Proposed by Date & sine arehyzed:
Petum address for report:  Name ASh Grove Cement Address 139,39 N. Livergate Bl. City, state, zip Portland OR 9720  Send résults to: Oregon Health Division, P.O. Box 14350, Portland		Analyst: Date: \$\frac{1}{2}\langle Date: \$\f

#### **Ash Grove Cement Company**

#### RIVERGATE LIME PLANT



13939 N. Rivergate Blvd.
Portland, OR 97203-6608

Phone: 503-286-1677 FAX: 503-289-2272



Fax Transmittal Form

TO: Ed Hodge

FROM: Glenn Dollar

Fax number:

Date sent:

10-16-00

503 - 988 - 5844

Number of pages including cover page:

Q

Here is a copy of the 4th atr. test results. We will include Witrate on the next test.

Thanks Glem.

OCT 1 6 2000

Enter Public Water System ID # In boxes below:  4 1 9 4 4 5 3  Name of Water System:	Sample Invalid: resample immediately  Leaked Over Heavy non-coliform growth (as defi	R SUPPLIES ER PROGRAM  RESULTS ent* D'Absent ent* D'Absent  CF ent Agar + MUG  Bot 30 hr old ned by method)  Copy Distribution: White Lab Yellow Health Division Pink Water System  Form # 50-90 (Rev. 1/98)	FOOD PRODUCTS LABORATO  12003 N.E. Ainsworth Circle, Sur Portland, OR 97220-9034  Cert # OROO - 1   Imple # 100 900 %  Ittle #  Ite & time received 10 - 9 - 00  Derived by: EA  Ite & time analyzed: 10 - 9 - 1	10:45Am
Send results to: Oregon Health Division, P.O. Box 14350, Portian	nd OR 97293-0350 Phone (503) 731-		alyst: 10/10, 11:30 f	Date: 10-13

C	Enter Public Water System ID # In boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	( Latroration Money
	Address 13939 N. R. vergate Blvd.  City Portland County Moth  Phone 286-1677  Collection date and time: 01 105101-8:00 Em  Month Day Year How Min  Type of sample: PRoutine Prepeat Special  *If repeat, date of initial positive  Collected by: Jeff Peterson  Sample point: Lab tap  Chlorinated? Pres No Free Chlorine mg/15  Return address for report:  Name Ash Grove Cement  Address 13939 N. R. vergate 1  City, state, zip Portland, OR.	Total coliforms: Present Absent Fecal coliforms/E. coli: Present Absent See back of pink copy for interpretation  Test Methods: MMM O-M O G MTF MF P-A CF EC EC+MUG Nutrient Agar + MUG  Sample invalid: resample immediately Over 30 hr old Heavy non-coliform growth (as defined by method)  Copy Distribution: White Lab Yellow Health Division Pink Water System  Form # 50-90 (Rev. 1/98) e:twork/labslip	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034  Lab Cert # 0 2 5 4  Sample # 0 1 5 5 1 2  Bottle # Date & time received 1 5 0 1 10 2 5 5 1 2  Received by: CAX Date & time analyzed: 01 04 07 M 25 Comments:
	Send results to: Oregon Health Division, P.O. Box 14350, Portiz	and OH 97293-USBU Phone (503) 737-4381	Review by: Date: Off



12003 N.E. Ainsworth Circle, Suite 105 • Portland, OR 97220 Office (503) 253-9136 • FAX (503) 253-9019 • 1-800-FPL-9555

ASH GROVE CEMENT CO. 13939 N RIVERGATE PORTLAND, OR 97203

01/18/01

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 01/10/01. Results are in mg/L (ppm).

P.O. # N/A

DESCRIPTION	NITRATE	SAMPLE#
WATER FROM FIRST QUARTER 01-10-01, *	<0.1 mg/L	0110080
DATE SAMPLE COLLECTED:	01-10-01	0110080
COLLECTED BY:	ASH GROVE	0110080
DATE RECEIVED:	01-10-01	0110080
METHOD:	EPA 300.0	0110080
TESTED BY:	COFFEY LAB	0110080
DATE TESTED	01-11-00	0110080

THANK YOU

#### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105 PORTLAND, OREGON 97220 503-253-9136 / FAX 503-253-9019

#### OREGON ID#OR041 / WASHINGTON ID#OR042

To be Filled in by Person Submitti	ing Sample:
Public Water System □	Realty Transaction 🛛
Pws ID #: 41 Source ID:	Source Name:
Public Water System or Property Ov	vner Name:
Ash Grove Cement	Co.
Address: 13939 N. Riverga	te
City, State, Zip: Portland,	OR 97203
Sampled at: Samp	oled by:
Date collected: O\-\O-O\ Time	e collected:
Sample composition: Raw/Treated * Source	/Distribution * Single/Combined
To be Completed by Laboratory	

To be Complet	ed by	Laboratory	<i>†</i>			
Date received	i in 1	ab: 01-10-0	٥l	Date analyz	ed: (0) - \)	-00
Lab sampled I	D #:(	0110080		Sample comp	osited in l	ab: Y/M)
Contaminant	Code	MCL mg/L	An	alysis mg/L	Method	Analyst
Nitrate Nitrate/Nitrite	1040 1038	10. 10.	<	01/	EPA 300.0	coffey
Nitrite	1041	1.0				

Coffey Lab ID #088

 $f: wp51 \land fice \land nitrate.98$ 



## Food Products Laboratory, Inc. 12003 N.E. Ainsworth Circle Suite 107

12003 N.E. Ainsworth Circle, Suite 105 • Portland, OR 97220 Office (503) 253-9136 • FAX (503) 253-9019 • 1-800-FPL-9555

DATE

INVOICE #

1/18/2001

143872

#### BILL TO:

Ash Grove Cement Co. 13939 N. Rivergate Portland, OR 97203

> P.O. NO. **TERMS**

			 		Net 30
ITEM		DESCRIPTION	QTY.	RATE	AMOUNT
					4-00
D310	Nitrate		l	25.00	25.00

FPL SAMPLE #0110080

\$25.00

Enter Public Water System ID # in boxes below:	MICROBIOLOGICAL ANALYSIS  PUBLIC WATER SUPPLIES  DRINKING WATER PROGRAM	Laboratory Name.
Name of Water System:  ASh Grove Comen+  Idress 13939 N. Rivergate Blud.  by Portland & County Hight.	LABORATORY RESULTS Total coliforms Depart Wabsent Fecal coliforms Expel: OPresent Wabsent See back of pint apparts interpretation	FOOD PRODUCTS LABORATORY: INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034
polection date and time: 01 / 05 / 01 %: 00 pm  pe of sample: 6 Routine: 01 Repeat 01 Special  repeat, date of initial positive  plicated by: 16 Repeat 10 Special  repeat, date of initial positive  completed by: 16 Repeat 10 Special	Test Methods: TAM M D-M, U 9  INTE I ME I P-A I CF  EC I EC+MUS I Nutrient Ager + MUS  Sample invalid: resample immediately  Leaked I Over 30 hir old  Heavy non-collions growth (as defined by method)	Lab Cert # D C DY Sample # (3) O S C I C Sottle # Date & time received: 1 S C I LO C COG I/A
Return address for report.  Name ASh Grove Cement	Copy Distribution: White Lab Yellow Health Division Place Water System	Date & time analyzed: 01/01/07 MT3 Comments:
Address 13939 N. Rivergate & City, state, zip Portland OR.	Form # 50-90 (Rev. 1/98)	



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ASH GROVE CEMENT CO. 13939 N RIVERGATE PORTLAND, OR 97203

04/19/01

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 04/09/01.

P.O.# N/A

DESCRIPTION	POTABILITY	<u>NITRATE</u>	SAMPLE#
WATER FROM LAB, *	ABS./ABS.	<0.01mg/L	0409012
DATE / TIME SAMPLED:	4-9-01 7:30AM	4-13-01 AM	0409012
SPECIFIC LOCATION:	LAB	LAB	0409012
SAMPLED BY:	JEFF PETERSON	JEFF PETERSON	0409012
DATE / TIME RECEIVED:	4-9-01 10:50AM	4-13-01 10:15AM	0409012
TESTED BY:	DW	CL	0409012

MCL = Maximum contamination limit = 10mg/L for Nitrate in drinking water.

THANK YOU

Sinnel

Name of Water Systems  Ach Grove Cement Co.  ILABORATORY RESULTS  Address 19735 V Rucroste 2/vd.  City 1/4 and County Mult.  Phone 25c-1677  Collection date and time: 4 / 1/4 / 06 7 20 (20)  Total colliforms Collection date and time: 4 / 1/4 / 06 7 20 (20)  Type of sample: 1/2 Routine 1 Repeat 1 Special  If repeat, date of initial positive  Collected by: 1/2 R 1/2 to 5/3/2.  Collected by: 1/2 R 1/2 to 5/3/2.  Chlorinated? 1/2 Yes 1/3 No. Free Citorine mg/ 20  Return address for report.  Name ASA Grove Cament Co.  Address 13 9 3 V. Riveryata Bud.  Form # 50-90 (Rev. 1788).	Enter Public Water System ID # in boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	Laporatory Name
Collection date and time: 4 10 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Ash Grove Cements Co. 5  Address 13439 U Rivergate 3/14.  Dity avoland county Hult.	LABORATORY RESULTS  Total coliforms Depart Depart  Fecal coliforms/E.col; Depart Absent	EOG. TS LABORATORY INC. 12003 N.E. Ainsworth Circle; Suite 105 Portland, OF 97220-9034
Return address for report:  Name Ash Grove Cement Co.  Address i 3 9 3 9 10 . Riverage 5 10 d.  Return address for report:  White Lab.  Yellow Health Division.  Pink: Water System.  Form # 50-30 (Rev. 1/98).	Collection date and time: A / A / O D Q Q D D D D D D D D D D D D D D D D	☐ MTF ☐ MF ☐ P-A ☐ CF ☐ EC ☐ ES+MUG ☐ Number Agar + MUG Sample invalid: resample immediately ☐ Cealed ☐ Over 30 for old	Bottle # Date & time received 1/9010:50 Received by (1)
一个,一个,一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一	Name Ash Grove Cantent Co	Write Lab Yellow Health Division Pink Water System Form # 50-90 (Rev. 1/98)	Date & unite analyzed:

Enter Public Water System ID # in boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES SORINKING WATER PROGRAM	MACOPOPEROOK
Address 13939 N. Rivergarte Rf.  Address 13939 N. Rivergarte Rf.  City Artland OR County Hult.  Phone Re-1677  Collection date and time: 04 / 13 / 01 8 45 mm.  Type of sample: Routine Repeat Special  If repeat, date of initial positive  Collected by: Je 4 Reference.	LABORATORY RESULTS  Total coliforms:	FOOD PRODUCTS (ABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034  Lab Cent # O O O O O O O O O O O O O O O O O O
Chlorinated? 20 Yes D No 5 Free Chlorine mg/1 20		Date & time analyzed:
Name Ash Grove Cement Co Address 13939 V. Rivergate B City, state, zip Portland OR 9720	可能性に対して、企業と語りを整理性を表現します。 Automobility スープス かきだし	Comments



12003 N.E. Ainsworth Circle, Suite 105 • Portland, OR 97220 Office (503) 253-9136 • FAX (503) 253-9019 • 1-800-FPL-9555

ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

07/20/01

J. HEATH -286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 07/12/01. Bacterial results are in Colony Forming Units (CFU) per 100 ml. of water.

DESCRIPTION	POTABILITY	NITRATE	SAMPLE#
WATER, *	ABS/ABS	0.1 mg/L	0712096
SAMPLE LOCATION:	LAB		0712096
SAMPLED DATE/TIME:	7-12-01 9:415 AM		0712096
SAMPLED BY:	JEFF PETERSON		0712096
TESTED DATE/TIME:	7-12-01 1:00PM	7-12-01	 0712096
TESTED BY:	LC	CL	0712096

THANK YOU

Wide Kahl



12003 N.E. Ainsworth Circle, Suite 105 ● Portland, OR 97220 Office (503) 253-9136 ● FAX (503) 253-9019 ● 1-800-FPL-9555

ASH GROVE CEMENT CO. 13939 N RIVERGATE PORTLAND, OR 97203

10/25/01

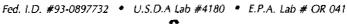
GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 10/18/01. All EPA holding times have been met by FPL.

P.O.# N/A

DESCRIPTION	POTABILITY NITRATE	SAMPLE#
WATER FROM LAB, *	ABS./ABS. 0.51mg/L	1018026
DATE / TIME SAMPLED:	10-18-01 8:00 AM	1018026
SAMPLED BY:	J. PETERSON	1018026
DATE / TIME RECEIVED:	10-18-01 11:00 AM	1018026
TESTED BY:	BR COFFEY	1018026
METHOD:	EPA MMO- EPA 300.0 MUG	1018026
LAB ID#:	OR00041 OR00011	1018026

THANK YOU





12003 N.E. Ainsworth Circle, Suite 105 • Portland, OR 97220 Office (503) 253-9136 • FAX (503) 253-9019 • 1-800-FPL-9555

ASH GROVE CEMENT CO. 13939 N RIVERGATE PORTLAND, OR 97203

10/25/01

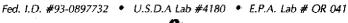
GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 10/18/01. All EPA holding times have been met by FPL.

P.O.#N/A

DESCRIPTION	POTABILITY NITRATE	SAMPLE#
WATER FROM LAB, *	ABS./ABS. 0.51mg/L	1018026
DATE / TIME SAMPLED:	10-18-01 8:00 AM	1018026
SAMPLED BY:	J. PETERSON	1018026
DATE / TIME RECEIVED:	10-18-01 11:00 AM	1018026
TESTED BY:	BR COFFEY	1018026
METHOD:	EPA MMO- EPA 300.0 MUG	1018026
LAB ID#:	OR00041 OR00011	1018026

THANK YOU



Enter Public Water System ID # in boxes below:	MICROBIOLOGICAL ANALY PUBLIC WATER SUPPLIES: " DRINKING WATER PROGRAM	S4S Laboratory Name
Name of Water System:  Ash Grove Cament  Address 13939 N. Ruse 9 ate Bl.  City Portland County Multa  Phone 266-1677  Collection date and time: 10 / 15 / 21 8 : 20 Portland Information Day Year Hour Minh  Type of sample: 10 Routine Prepart Decide Infragrant Minh  Trepeat, date of initial positive  Collected by: 1. Lab  Chlorinated? Wyes Pres Chlorine mg/ 25	LABORATORY RESULTS	Portland, OR 97220-1099  Leb Cert # OR OF J  Sample # OR OF J  Bottle # OR OF J  Received by OR OF J  A
Return address for report.  Name ASM Grove Cemment Address 13939 N. Rivergote City, state, zip Portland OR 97	1.03 etwentenberg	1: Comments:



12003 N.E. Ainsworth Circle, Suite 105 • Portland, OR 97220 Office (503) 253-9136 • FAX (503) 253-9019 • 1-800-FPL-9555

ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

02/13/02

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 02/07/02. All EPA holding times have been met by FPL.

P.O.# N/A

DESCRIPTION	POTABILITY	NITRATE	SAMPLE#
WATER FROM LAB SINK 02-07-02, *	ABS/ABS	<0.01 mg/L	0207042
SAMPLED DATE/TIME	2-7-02 8:15AM		0207042
SAMPLED BY	JEFF PETERSON		0207042
SAMPLE LOCATION	LAB SINK		0207042
TESTED DATE/TIME	2-7/11:50	02-07-02	0207042
TESTED BY	LC	COFFEY LAB	0207042

THANK YOU
Tim McCann, Lab Director
Nidal Kahl, Technical Director

RP-1/PP-1/SP-

Fed. I.D. #93-0897732 • U.S.D.A Lab #4180 • E.P.A. Lab # OR 041

Enter Public Water System ID # in boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105
A Sh Grove Lime  Address 13939 N Rivergate Blud  City Portland County Mult	LABORATORY RESULTS  Total coliforms — Present* Absent Fecal coliforms/E, coliforms/E and pink topy for interpretation	Portland, OR 97220-9034
Phone 503 - 286 - 1677  Collection date and time: 02 / 07 / 02 8: 15 6  Month Day Year Hour Min  Type of sample: ARoutine 1 *Repeat   Special  If repeat, date of initial positive  Collected by: 4 Peterson  Sample point: 4 SIMIC	Test Methods:  MTF	Lab Cert # 0
Chlorinated? Pres O No Free Chlorine mg/1_20  Return address for report:  Name ASh Grove Lime  Address 13939 V Rivergate B	Copy Distribution: White Lab Yellow Health Division Pink Water System Form # 50-90 (Rev. 1/98)	Date & time analyzed: 2/7 11.50 H Comments:
City, state, zip Por Hand OR 9	7203	Analyst:

Enter Public Water System ID & In boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	Laboratofy Name
Name of Water System:  A Sh Grove I was  ddress 13939 N Riverge + E Blvd  ity County Mult  hone 13-266 1677  ollection date and time: 02/01/02 6 15  ype of sample: 2 Routine 1 Repeat 1 Special  If repeat, date of initial positive  ollected by: 44 Pet 47500	LABORATORY RESULTS  Total coliforms: Some Present Absent Paces soliterns/E coliforms  Test Methods: Present Agar + MUG  Test Methods: Nutrient Agar + MUG  Sample invalid: resample immediately: Cleaked: Over 50 ftr old Heavy non-coliform growth (as defined by method)	EGO PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105  Big Portland: OR 97220-9034  Lab Cert # O O O O O O O O O O O O O O O O O O
hlorinated? Types D No Free Chilorine mg/ 20		Date & time analyzed: 2/7 1/50-10
Name Ash Grove Lime  Address 13939: V. Rivergade J  City, state, zip. Portland OR	e twork lebells	Comprients:



12003 N.E. Ainsworth Circle, Suite 105 • Portland, OR 97220 Office (503) 253-9136 • FAX (503) 253-9019 • 1-800-FPL-9555

ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

04/24/02

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 04/12/02. Bacterial results are in Colony Forming Units (CFU) per 100 ml. of water.

P.O.# N/A

DESCRIPTION	<b>POTABILITY</b>	NITRATE	SAMPLE#
WATER	ABS./ABS.	<0.01 mg/L	0412050
SAMPLE LOCATION:	LAB SINK		0412050
SAMPLED DATE / TIME:	4-12-02 9:00AM		0412050
SAMPLED BY:	LAB BOY		0412050
TESTED DATE / TIME:	4-13-02	4-12-02	0412050
TESTED BY:	КМ	CT	0412050
EPA LAB NUMBER:	OR00041	OR00011	0412050
METHOD:	EPA MMO- MUG	EPA 300.0	0412050

THANK YOU Tim McCann, Nidal Kahl,

Lab Director

Technical Director



To be Filled in by Person Submitting Sample: ASh Gnve Lime Public Water System X Realty Transaction Pws ID #: 4194453 Source name: Ash Grove Lime Source ID: Public Water System or Property Owner Name: Blvd. Address: City, State, Zip: Sampled at: 0412050 Sampled by: Client Date Collected: 04/12/02 Time collected: 0900 Sample Composition: Raw or Treated Water | From Source or Distribution | Single or Combined Sample

To be Completed by Laboratory						
Date received in lab: 04/12/02 Date analyzed: 04/12/02						
Lab sampled ID #: A20412AR-1			Sa	Sample composited in lab: Y / N		
Contaminat	Code	MCL mg/l	Analysis mg/l	MDL	Method	Analyst
Nitrate	1040	10.	ND	0.01	EPA 300.0	DWK
Nitrate-Nitrite	1038	10.				
Nitrite	1041	1.0		<del>;</del>	<del></del> ,	. <del></del>

Nitrate tested by Coffey Laboratories 2: Collimbor. Britisport. Br



To be Filled in by Person Submitting Sample: ASh Gibre Lime Public Water System X Realty Transaction D Source name: Ash Grove Lime Pws ID #: 4194453 Source ID: Public Water System or Property Owner Name: N. Rivergate Blvd. Address: City, State, Zip: Sampled at: 0412050 Sampled by: Client Date Collected: 04/12/02 Time collected: 0900 Raw or Treated Water | From Source or Distribution | Single or Combined Sample Composition: Sample

To be Completed by Laboratory							
Date received in lab: 04/12/02 Date analyzed: 04/12/02							
Lab sampled ID #: A20412AR-1				Sample composited in lab: Y / N			
Contaminat	Code	MCL mg/l	Analysis n	ng/l	MDL	Method	Analyst
Nitrate	1040	10.	ND		0.01	EPA 300.0	DWK
Nitrate-Nitrite	1038	10.		•			
Nitrite	1041	1.0	40.00 kg		### ·		

Nitrate tested by Coffey Laboratories 2: Colmiport. brilingort. brilingort. brilingort. brilingort. brilingort. brilingort. brilingort. brilingort. brilingort.

Enter Public Water System ID # in boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DAINWAND WATER BROGRAM	Laboratory Name
Name of Water System:  A SN Grove Lime  Address 13739 P River gate B1.  City Portland county Hult  Phone 503-286-1627	CABORATORY RESULTS  Total coliforms: Call Division Makeont Fedal coliformal E. coll Division VAbsent See back of pink copy for many season.	FOOD PRODUCTS LABORATURE.  12003 N.E. Ainsworth Circle, Suite: 105 Portland, OR 97220-1099
Collection date and time: 0+ / 12 / 02 9 CO Type of sample 12 Routine	Test Methods:    MTF	Lab Cort # OROOGY   ## Sample # OY   ZO50  Bottle # Date & stric received Y-12-10-46 ** Proceived by: YC
Chlorinated? Salves □ No. Free Chlorine mg/1 15  Return edidness for report:  Name Ash Grove Lime  Address 13939 NR Mr. ya. 10 8  City, state, zip 63-1 and 08 972	Copy Distribution: Write: Lab. Yellow: Health Division Pris: Water System Form # 50-So (Pev. 1/98) a worthassing	Date & time abalyzed 4/12/02 11:15/22 Continents: + Nitrate



12003 N.E. Ainsworth Circle, Suite 105 ● Portland, OR 97220 Office (503) 253-9136 ● FAX (503) 253-9019 ● 1-800-FPL-9555

ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

07/23/02

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 07/01/02. All EPA holding times have been met by FPL (EPA LAB #OR00041).

P.O.# N/A

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER FROM LAB, *	ABS/ABS	<0.01mg/L	0701017
SAMPLED DATE/TIME:	07-01-02 8:00 AM		0701017
SAMPLED BY:	JEFF P		0701017
TESTED DATE/TIME:	7-02 11:45	07-02-02	0701017
TESTED BY:	EO	COFFEY LAB	0701017
METHOD:	MMO-MUG	EPA 300.0	0701017
EPA #:	OR00041	OR00011	0701017

THANK YOU Tim McCann

Tim McCann, Lab Director

Nidal Kahl, Technical Director

fall

### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105
PORTLAND, OREGON 97220
503-253-9136 / FAX 503-253-9019
OREGON ID#OR041 / WASHINGTON ID#OR042

To be Filled in by Person Submitting Sample:
Public Water System K Realty Transaction 🗆
Pws ID #: 4194463 Source ID: Lab Source Name: Lab Smk
Public Water System or Property Owner Name:
Ash Grove Lime
Address: 13939 N. Rwargate Bl.
City, State, Zip: Porfland, OR 97203
FPL Sample # 0701017
Sampled at: Lub Sink Sampled by: Jeff P
Date collected: \$ 00 am
Sample composition: Raw/Treated * Source/Distribution * Single/Combined
To be Completed by Laboratory
Date received in lab: 7-01-02 Date analyzed: 7-2-02
Lab sampled ID #:A20705AK-  Sample composited in lab: Y/N)
Contaminant Code MCL mg/L Analysis mg/L Method Analyst
Nitrate 1040 10. NO ERA 300,8 CFS
Nitrate/Nitrite 1038 10.
Nitrite 1041 1.0
Tested by Coffey Lab

Enter Public Water System ID # in boxes below:  4 1 9 4 5 3  Name of Water System:  ASh Grove Lime  Address 13939 N. Rubergate. Bl  City Portland County Mult  Phone 503 286 1677  Collection date and time: 07 / 01 / 02 8: 00 9  Mannth Day Year Hour Min  Type of sample: Routine Prepeat Special  If repeat, date of initial positive  Collected by: Jeff P.  Sample point: Lab  Chlorinated? 21 Yes No Free Chlorine mg/l 20  Return address for report:  Name ASh Grove Lime	□ EC □ EC+MUG □ Nutrient Agar + MUG  Sample invalid: resample immediately □ Leaked □ Over 30 hr old □ Heavy non-coliform growth (as defined by method)  Copy Distribution: White Lab Yellow Health Division Pink Water System	Lab Cert #
Name ASh GOVE LIME Address 13939 N. Rivergate City, state, zip Portland, OR 97 Send results to: Oregon Health Division, P.O. Box 14350, Portla	Pink Water System Form # 50-90 (Rev. 1/98) e:\work\labslip	Analyst: 50 //: 45 Date: 7/2 Review by: Date: 7/3

Enter Public Water System ID # In boxes below:  4 1 9 4 4 5 3  Name of Water System:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	Leboratory Name
Ash Grove Lime  Address 13939 N. Riveraghe Bl  City Portland Comm. Nult	LABORATORY RESULTS Total coliforms: Di Present Absent Fecal coliforms (Colif) Di Present See back of pink capy for interpretation	
Phone 5.03 2.44 16.77  Collection date and time: 0.7 / 0.1 / 0.2	Test Methods:	Lab Ceri # DR COO4   The Sample # COO1   The Sample # COO1   The Sample # Cool   The Sample # Cool   The Sample # Cool   The Sample # Cool   The Sample   The Sam
Chlorinated? Serves I No Free Chlorine mg/ 20  Return address for report:  Name ASh Crove Livne Address 13939-U: Reverse te	图形的 (1. 1) (1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1. 15 1.	Date & time plugged: 7 / / / / Comments:
City, state, zip Portland OR 97		Analyst: 50 1/45 Detai 7/2 Review by Date: 2/3



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ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

10/17/02

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 10/04/02. All EPA holding times have been met by FPL (EPA LAB #OR00041).

P.O.# N/A

DESCRIPTION	NITRATE	SAMPLE#
WATER SAMPLE FROM LAB SINK, *	<0.01 mg/L	1004020
SAMPLE LOCATION	LAB SINK	1004020
SAMPLED DATE/TIME	10-4-02 7:00 AM	1004020
SAMPLED BY	JEFF PETERSON	1004020
TESTED DATE/TIME	10-4-02	1004020
TESTED BY	COFFEY LAB	1004020

THANK YOU Tim McCann, Lab Director Nidal Kahl, Technical Director

Enter Public Water System ID # In boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	Laboratory Name
Ash Grove Lime  Address 13939 N Divergate Blad.  City for Hand County Multi-	LABORATORY RESULTS Total coliforms: Present Mabsent Fecal coliforms Export Present Absent See bed of placetory for interpretation	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034
Phone 503 - 286 - 4677  Collection date and time: 10 / 4 / 72 7 00 4 http://doi.org/10.00000000000000000000000000000000000	Sample invalid: resample intractately.	Lab Cert # O COO \\ Sample # \\ \DO \\ \D\ \Coo \\ Bottle # \\ Date & time received \\ \D \\ \D\ \Coo \\ \D\ \\
Sample point SIAK Chlorinated? Myes O No. Free Chlorine mg/ 15	☐ Leaked ☐ Over 30 hr old ☐ Pleavy non-coliform growth (as defined by method)	Received by:  Date & time analyzed: 10/4 (C 1/20)
Name ASh Grove Lime  Address 13939 N Rivergate		Conmerts
City, state, zip Por lawl, OR 9	7203	Analyst: AFSNILL Date: 10/05/02

PWS I D#OR 4194453



# Food Products Laboratory, Inc.

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ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

01/30/03

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 01/15/03. All EPA holding times have been met by FPL (EPA LAB #OR00041). Coli/Ecoli if tested are reported per 100mls.

P.O.# N/A

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER SAMPLE FROM LAB, *	ABS./ABS.	<0.1 mg/L	0115035
SAMPLED DATE/TIME	1-15-03 7:30 AM		0115035
SAMPLED BY	JEFF P		0115035
TESTED DATE/TIME	1-16-03 11:25 AM	1-15-03	0115035
TESTED BY	LC	COFFEY LAB	0115035

THANK YOU
Tim McCann, Lab Director
Nidal Kahl, Technical Director

widel Kahl

### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105 PORTLAND, OREGON 97220 503-253-9136 / FAX 503-253-9019

OREGON ID#OR041 / WASHINGTON ID#OR042

To be Filled in by Person Submitting Sample:			
Public Water System 😾 Realty Transaction 🗆			
Pws ID #: 4194463 Source ID: Lab Source Name: Sink			
Public Water System or Property Owner Name:			
Ash Grove Lime			
Address: 13939 N Rivergate Bl			
City, State, Zip: Porthind OR 97203			
Sampled at: Leb Sun 4 (15 ppm) Sampled by: Jeff  Date collected: 1-15-03 Time collected: 7:30 aum			
Date collected: 1-15-03 Time collected: 7:30 aum			
Sample composition: Raw/Treated */Source/Distribution * Single/Combined			
To be Completed by Laboratory			
Date received in lab: 1-15-03 Date analyzed: 1-15-03			
Lab sampled ID #:015035 Sample composited in lab: Y/N			
Contaminant Code MCL mg/L Analysis mg/L Method Analyst			
Nitrate 1040 10. < 0.1 mg/L 874306.0 BAB			
Nitrate/Nitrite 1038 10.			
Nitrite 1041 1.0			

Tested by coffey Lab

Enter Public Water System ID # In boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRIVING WATER PROGRAM	(aborator) bure
Name of Water System:  A Sh Grove Fime  Address 13939 N Rivergate Bl  City Purtland County Mult	TABORATORY RESULTS  Total coliforms — Ci Present WAbsent  Febal coliforms/Eight Di Present WAbsent  Set bact of diffi copy for interpretation	EOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034
Collection date and time: D / 1/23 17 30 C    Sype of sample: PRoutine Property Special  If repeat, date of initial positive  Collected by: J ( P )  Sample point: L( b )	Test Methods:    MF	Lab Cert # # # # # # # # # # # # # # # # # # #
Return address for report:  Name ASh Grove Lime  Address 3.139 N Rivergate	Copy Distribution Write Lab Yallow Health Division Pirk Water System	Date & time analyzed Comments
City, state, zip Por Havo OR.	17203	Analyst: /// // // Date: /// Date: /// Date: /// // Date: // // // // // Date: // // // // // // // // // // // // //



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ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

04/11/03

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 04/04/03. All EPA holding times have been met by FPL (EPA LAB #OR00041). Coli/Ecoli if tested are reported per 100mls.

P.O.# N/A

DESCRIPTION	COLI/EC SM 9223B NITRATE	<u>SAMPLE#</u>
WATER SAMPLE FROM LAB SINK, *	ABS./ABS. < 0.1 mg/L	0404006
SAMPLED DATE/TIME	4-4-03 8:00 AM	0404006
SAMPLED BY	JEFF PETERSON	0404006
TESTED DATE/TIME	4/4/03 4/5/03 10:20AM	0404006
TESTED BY	LC COFFEY LAB	0404006

THANK YOU

Tim McCann, Lab Director

Nidal Kahl, Technical Director

### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105 PORTLAND, OREGON 97220 503-253-9136 / FAX 503-253-9019

OREGON ID#OR041 / WASHINGTON ID#OR042

To be Completed by Laboratory Tested by Coffey Lab						
Date received in lab:4-4-03				Date analyzed: 4-5-03		
Lab sampled ID #:0404000 Sample composited in lab: Y/N				ab: Y/N		
Contaminant	Code	MCL mg/L	<u>An</u>	alysis mg/L	Method	Analyst
Nitrate	1040	10.		<0.1	EPA 300.0	BAB
Nitrate/Nitrite	1038	10.				
Nitrite	1041	1.0				



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ASH GROVE CEMENT CO. 13939 N RIVERGATE PORTLAND, OR 97203

Report Date:

07/10/03

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 07/02/03. All EPA holding times have been met by FPL (EPA LAB #OR00041). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER SAMPLES FROM LAB SINK, 7-02-03 8:15AM, *	ABS./ABS.	<0.1 mg/L	0702037
DATE/TIME SAMPLED:	07/02/03 8:15 AM		0702037
SAMPLED BY:	JEFF PETERSON		0702037
DATE RECEIVED:	07/02/03 11:00 AM		0702037
DATE/TIME TESTED:	07/03/03 11:00 AM		0702037
TESTED BY:	FPL	COFFEY LAB	0702037
METHOD:	MMO-MUG	EPA 300.0	0702037
EPA LAB #:	OR00041	OR00011	0702037

THANK YOU
Tim McCann, Lab Director
Nidal Kahl, Technical Director

Sin Mel

### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105 PORTLAND, OREGON 97220 503-253-9136 / FAX 503-253-9019

OREGON ID#OR041 / WASHINGTON ID#OR042

To be Filled in by Person Submitting Sample:
Public Water System 🕱 Realty Transaction 🗆
Pws ID #: 4194453 Source ID: Source Name:
Public Water System or Property Owner Name:
Ash Grove Lime
Address: 13939 N. Rivergate Blvd.
City, State, Zip: Portland, OR 97203
sampled at: Lab Sink sampled by: Jeff Peterson
Date collected: 7-2-03 Time collected: 8:15 Am
Sample composition: Raw/Treated * Source/Distribution * Single/Combined

To be Complet	ed by	Laboratory				
Date received	d in l	ab: 7-2-03		Date analyze	ed: 7-3:0	3
Lab sampled ID #: 0702.037 Sample com			Sample compo	sited in	lab: Y/ <u>N</u>	
Contaminant	Code	MCL mg/L	An	alysis mg/L	Method	Analyst
Nitrate	1040	10.		20	EPA 300	o BAB
Nitrate/Nitrite	1038	10.				
Nitrite	1041	1.0				

Enter Public Water System ID # In boxes below:	MICROBIOLOGICAL ANALYSIS  PUBLIC WATER SUPPLIES  DRINKING WATER PROGRAM	Laboratory Name
Name of Water System:  ASh Grove Celment:  Address 13939 V. Rivergate Blud  City Portland County MUH.  Phone 503-286-1677  Collection date and time: 7 / 2 / 03 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	LABORATORY RESULTS  Total coliforms: D. Present: W. Absent Fecal coliforms/E coll: D. Present: W. Absent Servied of pink oppy for interpretation  Test Methods: W. H.N.O M.W.C.  D. MTF. 15 MF. D. P.A. D. CF.  D. EC. D. EC-MUS. D. Nutrient Agar + MUS  Sample invalid: resemple immediately  D. Leaked D. Over 30 hr old  D. Heavy non-coliform grown (as defined by method)	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034  Lab Cen # OR DOO!  Sample # OR DOO!  Bottle #  Date & time, received 7/02/03   COA
Normated? 12 Yes 12 No.: Free Chlorine mg/ 0 • 2 pp. 16.  Return address for report:  Name Ash Grove Lime  Address 13939 N. Rivergaste J.  City, state, zip Portland OR, 9.	in specific and the company of the c	Date & time analyzed: 7/2   200 Considerates: 7/3   000 Considerates: 7/3   00

### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105 PORTLAND, OREGON 97220 503-253-9136 / FAX 503-253-9019

OREGON ID#OR041 / WASHINGTON ID#OR042

To be Filled in by	Person Submi	tting Sample:
Public Water System		Realty Transaction 🗆
Pws ID #: 41	Source ID:	Source Name:
Public Water System	or Property	Owner Name:
Ash	Carove	Lime
Address: 13939	N. River	rgate Blvd.
City, State, Zip:	Portland	OR 94203
Sampled at: Lab Sir	٠K 5	sampled by: Jeff Peterson
Date collected: 01-29-	-04	Time collected: 8:30 Am
Sample composition: Raw	/Treated * Sour	rce/Distribution * Single/Combined

To be Complet	ed by	Laboratory	7		
Date received	l in 1	ab: 1-29-04	Date analy	zed: 0(- <i>3</i> 0	-04 -
Lab sampled I	D#:0	1129011	Sample com	posited in	lab: Y/N
Contaminant	<u>Code</u>	MCL mg/L	Analysis mg/	L Method EPA 3000	Analyst
Nitrate	1040	10.	au	CF7 30.0	Cost
Nitrate/Nitrite	1038	10.			
Nitrite	1041	1.0			

Tested by Coffey Lab.



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ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

02/03/04

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 01/29/04. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER, *	ABS./ABS.	N.D.	0129011
SAMPLE LOCATION	LAB SINK		0129011
SAMPLED DATE/TIME	1/29/04 8:30AM		0129011
SAMPLED BY	JEFF PETER		0129011
TESTED DATE/TIME	1/29/04 11:50AM	1/30/04 12:29 AM	0129011
TESTED BY	WANG	COFFEY LAB	0129011
METHOD:	SM 9223B	EPA 300.0	0129011

N.D. = Not detected. MRL = minimum reporting limit = 0.1 mg/L for Nitrate.

RECEIVED

FFB 10 2004

Ash Grove Rivergate

THANK YOU

Tim McCann, Lab Director

Nidal Kahl, Technical Director

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12003 N.E. Ainsworth Circle, Suite 105 • Portland, OR 97220 Office (503) 253-9136 • FAX (503) 253-9019 • 1-800-FPL-9555 • www.fplabs.com

ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

04/20/04

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 04/09/04. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER SAMPLE	ABS./ABS.		0409017
WATER SAMPLE, *		ND	0409018
SAMPLE LOCATION		LAB SINK	0409018
SAMPLED BY:	e e e e e e e e e e e e e e e e e e e	JEFF PETERSON	0409018
TESTED DATE/TIME		4/9/04 8:10AM	0409018
TESTED BY		DW	0409018
METHOD:		MMO-MUG	0409018
METHOD (for Nitrate):		EPA 300.0	0409018
TESTED BY		BAB	0409018

THANK YOU
Tim McCann, Lab Director
Nidal Kahl, Technical Director

Enter Public Water System ID # in boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	Taboratory Starren
If repeat, location: □ Uostream, □ Same, □ Downstream, □ Other □	LABORATORY RESULTS  Total coliforms:	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034  Lab ID #
Return address for report:  Name ASh Grove Lime Address 13939 N. Rivergad City, state, zip  Send results to: DHS-Drinking Water Program: P.O. Box 14350, P		invalidation reason:  □ Leaked □ Over 30 hrs. old  □ Heavy non-coliform growth (as defined by method)  □ Other  Analyst: Mudg(5160) □ Date: 4/1904  Review by: □ Date: 4/10-5

Enter Public Water System ID # In boxes below:  4 -1 Q 4 4 5 3  Neme of Water System:  A S N Grove IVICE  Phone 503-286-163 County Mult.  Collection date and time:  Type of sample: b Routine Q Repeat   Special III repeat, date of initial poetive  If repeat, location:   Upstream   Same   Downstream   Other Collected by:   PF   C 4 5 0 n.  Sample point:   A   Sink  Chlorinated? Types   No Rice chlorine mg/   2 ppm	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SURPLIES DRINKING WATER PROGRAM  LABORATORY RESULTS Total coliforms: Present Mabagit See back of pink begy for interpretation  Test Methods: M. 10: MUG Total coliforms: BEC E col: CF DEC+MUG D Nubfent Agar, MUG Cytochrome oxidasse/Beta-galactosidase "If repeat, sample ID of initial positive: December 19 Sample invalid: resample immediately	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034  Lab ID # // 1000-23  Sample # // 1000-23  Date & time received: 4/9/04/04/300 nt  Received by // Date & time analysis begun: 4/9/04/05/300 nt  Comments:
Return address for report:  /Name Ash: Grove Livne Address 13939 N. Riverge City, state, zlp:  Send results for DHS-Drinking Water Program: P.O. Box 16350.		Invalidation reason:  □ Leaked □ Over 30 hrs. old  □ Heavy non-coliform growth (as defined by method)  □ Other  Analyst:   □ Date:  □ Date:  □ Date:  □ Date:



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13939 N RIVERGATE BLVD. PORTLAND, 0R 97203

Report Date:

07/27/04

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 07/02/04. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER SAMPLE, *	ABS./ABS.	ND	0702069
DATE/TIME COLLECTED:	7/2/04 9:00AM		0702069
SAMPLE POINT:	LAB SINK		0702069
DATE/TIME RECEIVED:	7/2/04 11:00AM		0702069
TESTED BY:	JS	BAB	0702069
METHOD:	5M9223B	EPA 300.0	0702069

ND = not detected. MRL = minimum reporting limit = 0.1 mg/L for Nitrate.

THANK YOU

Tim McCann, Lab Director

Nidal Kahl, Technical Director

Enter Public Water System ID # In boxes below:  4 1 9 4 4 5 3  Name of Water System:  Cro Ve 1 M 0  Phone 503 - 786 - 1577 County MUI+  Collection date and time: 07 107 04 09: 00 Pm.  Month Day Year Hour Min  Type of sample: PRoutine = Repeat = Special  If repeat, date of initial positive  If repeat, location: Upstream = Same = Downstream = Other  Collected by: 146 SUAK	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM  LABORATORY RESULTS Total coliforms: Present Desent See back of pink copy for interpretation  Test Methods: MMO-MMG Total coliforms: MTF	FOOD PRODUCTS LARGE 12003 N.E. Ainsworth Circle; Portland, OR 97220-9034  Lab ID #	
Sample point: Lab SINK  Chlorinated? SYes ONo Free chlorine mg/l O.2 fpm	*If repeat, sample ID of initial positive:  □ Sample invalid: resample immediately	Comments:	
Return address for report:  Name ASh Grove Lime  Address 13939 N. Rivergat  City, state, zip Portland OR 9  Send results to: DHS-Drinking Water Program: P.O. Box 14350,	<del></del>	Invalidation reason:  □ Leaked □ Over 30 hrs. old  □ Heavy non-coliform growth (as defined by method)  □ Other  Analyst: ##\$ ##\$ ##\$	

Enter Public Water System ID # In boxes below:	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	Laboratory Name
Name of Water System:  County LIM2  Phone 503: 286   677 County MUI+  Collection date and time: 07 1021 DJ 09 00 Fm  Month: Day Year Hour Min  Type of sample: 0 Routine   Repeat   Special  If repeat, date of Initial positive  If repeat, location: 0 Upstream   Same   Downstream   Other  Collected by: 144 Peter 560  Sample point: 145 Sink	LABORATORY RESULTS  Total conforms	1203 N.E. Airsworth Circle, Suite (65 Portland, Off. 97220-9034  Lab to # 0 \$\( \) 0 \$\( \) 0 \$\( \) 0 \$\( \) 2 \$\( \) Sample \$\( \) 0 \$\(
Return address for resport:  Name ASh Grove Lime Address 13939 N. Rivergada City, state, zip Partland OR 9 Send results to: DHS-Drinking Water Program: P.O. Box 14350,		Invaligation reason:  D. Léaked D'Over 30 firs, old- Differy non-colliform growth (as defined by method) D'Other  Analyst LEDM Date: 7/3/4/ Review by: Date:



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ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

11/02/04

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 10/22/04. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER SAMPLE, *	ABS./ABS.	ND	1022001
DATE/TIME COLLECTED:	10/22/04 7:30AM		1022001
DATE/TIME RECEIVED:	10/22/04 8:30AM		1022001
SAMPLE POINT:	LAB SINK		1022001
COLLECTED BY:	JEFF PETERSON		1022001
TESTED BY:	FPL	COFFEY LAB	1022001
METHOD:	SM9223B	EPA 300.0	1022001

 ${
m ND}$  = not detected. MRL = minimum reporting limit = 0.1 mg/L for Nitrate.

THANK YOU

Tim McCann, Lab Director

Nidal Kahl, Technical Director

Return address for report:  Name ASh Grove Lime  Address 13939 N. Rivergate Bluk.  City, state, zip Portland OR 91203  Copy Distribution: White: Lab Yellow: Dept. of Human Services Pink: Water System  Invalidation reason: Deaked Dever 30 hrs. old Heavy non-colliform growth (as defined by method)	Enter Public Water System ID.# in boxes below:  4 1 9 4 5 3  Name of Water System:  ASA Grove Time  Phone 503-286-1677 County Mult-  Collection date and time: 0 /22 / 04 07 30 p.m.  Month Day Year Hour Min  Type of sample: Routine  Repeat  Special  If repeat, date of initial positive  If repeat, location: Upstream  Same  Downstream  Other  Collected by: 1845-1650  Sample point: 185-1615  Chlorinated? Yes  No Free chlorine mg/1 0 1 0244	PUBL DRINKI  LABORATOI  Total coliforms:  Pre Fecal coliforms:  Pre *see back of pink copy for interpretation  Test Methods:  MMO - NV 6  Total coliforms:  MTF  MF  Fecal coliforms:  EC	sent* Ø Absent  P-A CF  Nutrient Agar + MUG  Beta-galactosidase  sitive:	Laboratory Name  FOOD PRODUCTS LABORATORY, INC.  12003 N.E. Ainsworth Circle, Suite 105  Portland, OR 97220-9034  Lab ID #
Analyst:Date;	Name ASh Grove Lime	e Blud. 1203	White: Lab Yellow: Dept. of Human Services Pink: Water System	□ Leaked □ Over 30 hrs. old □ Heavy non-collform growth (as defined by method) □ Other □



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ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

02/01/05

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 01/28/05. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER SAMPLE, *	ABS./ABS.	ND	0128027
DATE/TIME COLLECTED:	1/28/05 7:45AM		0128027
SAMPLE POINT:	LAB SINK		0128027
COLLECTED BY:	JEFF PETERSON		0128027
DATE/TIME RECEIVED:	1/28/05 9:00 <b>AM</b>		0128027
TESTED BY:	BP	COFFEY LAB	0128027
METHOD:	SM9223B	EPA 300.0	0128027

ND = not detected. MRL = minimum reporting limit = 0.1 mg/L for Nitrate.

RECEIVED

FEB - 7 2005

THANK YOU
Tim McCann, Lab Director
Nidal Kahl, Technical Director

Ash Grove Rivergate

Enter Public Water System ID # In boxes before:	DES MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105
Phone 503 256 1677 County Milet Coffection date and time: 0 1/28/1 65 7 15 15 17 15	L'ABORATORY RESULTS oral coliforms:	Portland, OR 97220-9034  Portland, OR 97220-90
Return address for report:  Name Ask Grove Line: Address 13 139 N. Riverset 31.  City, state, zip Portland OR 97208  Send results to: DHS-Drinking Water Program: P.O. Box 14350, Po		Invest Gotton reason:    Cover 30 hrs. old



To be Filled in by Person Submi	itting Sample:	
Public Water System □		Realty Transaction □
Pws ID #: 41 94453	Source ID:	Source name:
Public Water System or Property O	wner Name:	
Ach	Grove L	ine
		gate Blud.
City, State, Zip: Port\0	•	97203
Sampled at: FPL #0409018 - Lo	uh Sink	Sampled by: Client Jest Peterson
Date Collected: 04/09/04	······································	Time collected: 0815
Sample Composition: Raw or Tr Sample	reated Water   Fror	n Source or Distribution   Single or Combined

To be Complete	d by Laborate	ory					
Date received in lab: 04/09/04  Date analyzed: 04/09/04							
Lab sample ID #:	A40409Z-1	1040901	გ	Saı	mple compo	osited in lab: Y /	<u>N</u>
Contaminant	Code	MCL mg/l	Analysis n	ıg/l	MDL	Method	Analyst
Nitrate	1040	10.	ND		0.1	EPA 300.0	BAB
Nitrate-Nitrite	1038	10.				***	
Nitrite	1041	1.0	<b></b>				



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ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

05/17/05

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 05/03/05. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	NITRATE	SAMPLE#
WATER SAMPLE, *	<0.1 mg/L	0503017
DATE/TIME COLLECTED:	5/03/05 9:00AM	0503017
SAMPLE POINT:	LAB	0503017
COLLECTED BY:	JP	0503017
DATE/TIME RECEIVED:	5/03/05 10:00AM	0503017
TESTED BY:	COFFEY LAB	0503017

THANK YOU

Tim McCann, Lab Director

Nidal Kahl, Technical Director

#### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105
PORTLAND, OREGON 97220
503-253-9136 / FAX 503-253-9019
OREGON ID#ORO41 / WASHINGTON ID#ORO42

To be Filled in by Person Submitting Sample: Public Water System 📜 Realty Transaction □ Pws ID #: 4194453 Source ID: LAB Source Name: SINK Public Water System or Property Owner Name: Ash Grove Lime Address: N. Riveraake Bl. <u>Portland</u> Zip: City, State, Sampled at: Sampled by: Date collected: Time collected: 0900

To be Complet	ed by	Laboratory	7				
Date received in lab:05/03-05 Date analyzed: 5-4-05					5		
Lab sampled I	D #:0	503017		Sample	comp	osited in	lab: Y <u>/N</u>
Contaminant	Code	MCL mg/L	An	alysis r	ng/L	Method	Analyst
Nitrate Nitrate/Nitrite	1040 1038	10. 10.		۷۰۱		EPA 300.0	BAB
Nitrite	1041	1.0	·····				

Sample composition: Raw Treated > Source/Distribution \* Single/Combined

Tested by Coffey lub = OREIAP 100028



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ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR 97203

GLENN DOLLAR 503-286-1677 Report Date:

07/29/05

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 07/15/05. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	NITRATE	COLI/EC SM 9223B	SAMPLE#
WATER SAMPLE, *	<0.1 mg/L	ABS./ABS.	0715055
DATE/TIME COLLECTED:	7/15/05 8:00AM		0715055
SAMPLE POINT:	LAB SINK		0715055
COLLECTED BY:	JEFF PETERSON		0715055
DATE/TIME RECEIVED:	7/15/05 10:30AM		0715055
TESTED BY:	COFFEY LAB		0715055

THANK YOU

Tim McCann, Lab Director

Nidal Kahl, Technical Director

### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105 PORTLAND, OREGON 97220 503-253-9136 / FAX 503-253-9019

### OREGON ID#OR041 / WASHINGTON ID#OR042

To be Filled in by Person Submitting Sample:
Public Water System 🌹 Realty Transaction 🗆
Pws ID #: 4144463 Source ID: Lab Source Name: Sink
Public Water System or Property Owner Name:
Ash Grave Lime
Address: 13939 N. Rivergabe Bl.
City, State, Zip: Portland OR 97203
Sampled at: Lab Sampled by: JP
Date collected: 717 95 Time collected: 8100 am
Sample composition: Raw/reated * Source/Distribution * Single/Combined
To be Completed by Laboratory
Date received in lab: 7-15-05 Date analyzed: 7-14-65
Lab sampled ID #: 0715055 Sample composited in lab: Y/M
Contaminant Code MCL mg/L Analysis mg/L Method Analyst
Nitrate 1040 10. < O.\ EPA 300.0 BAB
Nitrate/Nitrite 1038 10.
Nitrite 1041 1.0

Tested by Coffey Lab = 100028

Enter Public Water System tD # in boxes below:  4 1 9 4 5 3  Name of Water System:  A Short Lime  Phone 503-286-1077 County MUL+  Collection date and time: 57 15, 05 8:00 am  Month Day Year Hour Min  Type of sample: A Routine 1 "Repeat 1 Special  "If repeat, date of initial positive  If repeat, location: 1 Upstream 1 Same 1 Downstream 1 Other  Collected by: 144 Peterson  Sample point: Lab Sink	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM  LABORATORY RESULTS Total coliforms:	Laboratory Name  FOOD PRODUCTS LABORATORY INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034  Lab ID # OR 1000 23 Sample # 0715059 Date & time received: Received by: CMM Date & time analysis begun: 715/05 11:10am Kf Comments:	
Chlorinated? Yes O No Free chlorine mg/l	ପ Sample invalid: resample immediately		
Return address for report:  Name  Address  City, state, zip  Send results to: DHS-Drinking Water Program: P.O. Box 14350	Copy Distribution: White: Lab Yellow: Dept. of Human Services Pink: Water System Form # 50-90 (Rev. 11/02)  Portland OR 97293-0350 Phone (503) 731-4381	Invalidation reason:  Leaked Over 30 hrs. old Heavy non-coliform growth (as defined by method)  Other  Analyst: Date: 7/16 ///50, Review by: Date: 7/16-0	

Enter Public Water System ID # in boxes below:	DES MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES ORINKING WATER PROGRAM	Laboratory Name	
Collection date and time: 17 / 05 9:00 pm.  Month Dis Year How Min  Type of sample: Schoutine: Q. Repeat D. Special:  "If repeat, date of initial positive	LASCRATORY RESULTS  Total coliforms:	FOOD PRODUCTS LABORATORY INC. 12003 N.E. Ainsworth Carde, Suite 105 Portland, OR 97220-9034 Lab to a 10 1000 23 Sample * 0715056 Date & time received: 7/1505 10-30 a.m. Pacceived by: CMAN Date & time analysis begun: 7/15/45 1/14/04/n. K.J. Comments:	
Return address for report:  Name  Address  City, state, zip  Send results to: DHS-Drinking Water Program: P.O. Box 14350, F	Copy Distribution: White: Lab Yellow: Dipt. of Human Services. Pinic. Water System. Form # 50-90 (Rev. 11/02)	Invalidation reason:  □ Lested □ Over 30 pre_old □ Heavy non-coliform growth (as defined by method) □ Other  Analyst: □ Date: 16   15   15   15   15   15   15   15	



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ASH GROVE LIME 13939 N RIVERGATE BLVD. PORTLAND, OR

Report Date:

10/18/05

GLENN DOLLAR 503-286-1677

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 10/10/05. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	NITRATE	NITRITE	COLI/EC SM 9223B	SAMPLE#
WATER SAMPLE, *	ND	ND	ABS./ABS.	1010019
DATE/TIME COLLECTED:	10/10/05 8:50AM			1010019
SAMPLE POINT:	LAB SINK			1010019
COLLECTED BY:	JEFF P.			1010019
TESTED BY:	BAB	BAB	FPL	1010019

ND = not detected. MRL = minimum reporting limit = 0.1 mg/L for Nitrate and Nitrite.

RECEIVED

OCT 25 2005

Ash Grove Rivergo

THANK YOU

Tim McCann, Lab Director Nidal Kahl, Technical Director

#### FOOD PRODUCTS LABORATORY, INC.

12003 NE AINSWORTH CIRCLE, STE 105 PORTLAND, OREGON 97220 503-253-9136 / FAX 503-253-9019 OREGON ID#OR041 / WASHINGTON ID#OR042

To be Filled in by Person Submitting Sample:						
Public Water System X Realty Transaction						
Pws ID #: 4194453 Source ID: Source Name:						
Public Water System or Property Owner Name:						
Ash Grove Lime						
Address: 13939 N. Rivergate Blud.						
Address: 13939 N. Rivergate Blud. City, State, Zip: Portland OR 97203-6608						
Sampled at: Lab Sink Sampled by: Jaff P						
Date collected: 10/10/65 Time collected: 0900						
Sample composition: Raw Treated * Source/Distribution * Single/Combined						
To be Completed by Laboratory						
Date received in lab: 10-10-05 Date analyzed: 10-1/-05						
Lab sampled ID #:'10100 9 Sample composited in lab: Y/N						
Contaminant Code MCL mg/L Analysis mg/L Method Analyst						

1.07

401

EPA 300.0

G.00E A93

Tested by coffey Lab

1040

1041

10.

10.

1.0

f:wp51\office\forms\nitrate.98

Nitrate/Nitrite 1038

Nitrate

Nitrite

Enter Public Water System ID s in boxes below:  4 1 9 4 4 5 3	MICROBIOLOGICAL ANALYSIS PUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	Laboratory Name FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR: 97220-9034		
Name of Water System:  ASh Grove Limite  Total coliforms:    Feeal coliforms	,我们也没有一个人,我们也没有一个人的,我们就是一个人的,我们就是一个人的,我们就是一个人的,我们也没有一个人的。""我们是一个人,我们也没有一个人,我们也没有			
Collection date and time: LO 10 08 08 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MMO:MV6- DMIF DME OPA DGE	Lab ID # 0 R \000 23 Sample # 10 100 19 Date & time received: 10 10 05 16 5 5 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
Return address for report:  Name Ash Grove Line  Address 13939 N. River Satil Blud.  City, state, zip Portland OR, 97203-6608  Send results to: DHS-Drinking Water Program: P.O. Box 14350, Portland OR 9725	Copy Distribution: White: Lab Yellow: Dept of Human Services Pink: Water System Form # 50-90 (Rev. 11/02)	Invalidation reason:  □ Leaked: □ Over 30 hrs. old □ Heavy non-coliform growth (as defined by method). □ Other  Analyst:  Date: □ Date: □ Lister		

# **Bodycote** FPL

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ASH GROVE LIME

13939 N RIVERGATE BLVD. PORTLAND, OR 97203

Report Date:

02/02/06

GLENN DOLLAR 503-286-1677 503-289-2272-FAX

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 01/23/06. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	NITRATE	COLI/EC SM 9223B	SAMPLE#
WATER SAMPLE, *	ND	ABS./ABS.	0123010
DATE/TIME COLLECTED:	1/23/06 8:30AM		0123010
SAMPLE POINT:	LAB SINK		0123010
COLLECTED BY:	J. PETERSON		0123010
DATE/TIME RECEIVED:	1/23/06 10:30AM		0123010
TESTED BY:	SR	RJ	0123010

ND = not detected. MRL = minimum reporting limit = 0.10 mg/L for Nitrate.

THANK YOU
Tim McCann, Lab Director
Nidal Kahl, Technical Director

RP-1/PP-1/SP-1



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PWS ID #: 4194453									
Public Water Systen	Public Water System: ASH GROVE LIME								
Address: 13939 N. I	RIVERO	SATE BL.	· t						
City, Sate, Zip: POR	TLANI	O, OR 972	203-6608						
Sampled at: LAB SI	NK		San	pled by: JEFI	PETERSO	N			
Date Collected: 01-2	23-06		Tim	e collected: 0	830				
Sample Composition:	Raw	or <u>Treated</u>	Water   From	Source or Distr	ibution   <u>Si</u>	ngle or Co	mbined		
Date Received: 01-23	-06	Date An	alyzed: 01-23-0	06 23:43	Lab Samp	le ID #: 01	23010		
Contaminant	Code	MCL (mg/l)	Analysis (mg/l)	Method	Analyst	Lab	OR Cert#		
NITRATE	1040	10.0	ND	EPA 300.0	SA	NCA	OR10002 1-0004		

<sup>\*</sup>NCA = NORTH CREEK ANALYTICAL

Thank You Tim McCann, Laboratory Director Nidal Kahl, Technical Director

C:\WPWIN\Customer\Customer 2006\ash grove lime nitrate-06.wpd

Enter Public Water System ID # In boxes below:  4 1 1 9 4 4 5 3	MICROBIOLOGICAL ANALYSIS  PUBLIC WATER SUPPLIES  DRINKING WATER PROGRAM	Laboratory Name		
Collection date and time: 0   23 06 05 30 a.m.  Mornth Day Year Hour Min   Test Methods   Type of sample: A Routine   Repeat   Special   Total colliforms: "If repeat, date of initial positive   Fecal colliforms:  for repeat, location: 0 Upstream   Same   Downstream   Other   Collected by: 0   Collec	OMITE OME OPA OCF	FOOD PRODUCTS LABORATORY, INC. 12003 N.E. Ainsworth Circle, Suite 105 Portland, OR 97220-9034 Lab ID-# 0123010 Date & time received: 123/06 10:30 o.m. Received by: 1123/06 10:30 o.m. Date & time analysis begun: 1/23/04 11:45 ray 2 F. Comments:		
Name Ash Grove Lime Address: 13939 N. Rivergate Bi. City, state, zip Portland OR 97203-6608  Send results to: DMS-Drinking Water Program: P.O. Box 14350, Portland OR 972	<u>. 프로그 644 원 - 1850</u> - 1 12 15 15 15 15 15 15 15 15 15 15 15 15 15	Invalidation reason:  □ Leaked □ Over 30 hrs old  □ Heavy non-coliform growth (as defined by method)  □ Other  Analyst: Date:		

## **Bodycote** FPL

12003 N.E. Airsworth Gircle, Suite 105 - Pontend, OR 9/220 - 503/253-9136 - FAX 503/253 9019 - 800/FPL 9555 - UNLINE; www.bodycote.com - Reseits on Demand; www.fpiens.com--chirp://www.fpiens.com--

ASH GROVE CEMENT CO/ASH GROVE LIME 13939 N RIVERGATE PORTLAND, OR 97203

Report Date:

05/12/06

GLENN DOLLAR 503-286-1677 503-289-2272-FAX

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 04/14/06. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER SAMPLE, *	ABS./ABS.	ND	0414219
DATE/TIME COLLECTED:	4/14/06 8:20AM		0414219
SAMPLE POINT:	LAB SINK		0414219
SAMPLED BY:	JEFF PETERSON		0414219
DATE/TIME RECEIVED:	4/14/06 8:30AM		0414219
TESTED BY:	TEST AMERICA		0414219
METHOD:	SM9223	EPA 300.0	0414219

ND = NONE DETECTED

MDL = MINIMUM DETECTION LIMIT = 0.1mg/L FOR NITRATE IN DRINKING WATER

THANK YOU
Tim McCann, Lab Director
Nidal Kahl, Technical Director

RP-1/PP-1/8P-



12003 N.E. Ainsworth Circle, Suite 105 · Portland, OR 97220 · 503/253-9136 · FAX 503/253-9019 · 800/FPL-9555 · ONLINE: www.bodycote.com · Results on Demand: www.fplabs.com<a href="https://www.fplabs.com</a>

ASH GROVE CEMENT CO/ASH GROVE LIME 13939 N RIVERGATE PORTLAND, OR 97203

Report Date:

05/12/06

GLENN DOLLAR 503-286-1677 503-289-2272-FAX

Re: Results of tests performed on samples received by FPL, Food Products Laboratory, Inc. on 04/14/06. All EPA holding times have been met by FPL (EPA LAB #OR100023). Coli/Ecoli if tested are reported per 100mls.

DESCRIPTION	COLI/EC SM 9223B	NITRATE	SAMPLE#
WATER SAMPLE, *	ABS./ABS.	ND	0414219
DATE/TIME COLLECTED:	4/14/06 8:20AM		0414219
SAMPLE POINT:	LAB SINK		0414219
SAMPLED BY:	JEFF PETERSON		0414219
DATE/TIME RECEIVED:	4/14/06 8:30 <b>AM</b>		0414219
TESTED BY:	TEST AMERICA		0414219
METHOD:	SM9223	EPA 300.0	0414219

ND = NONE DETECTED

MDL = MINIMUM DETECTION LIMIT = 0.1mg/L FOR NITRATE IN DRINKING
WATER

THANK YOU
Tim McCann, Lab Director
Nidal Kahl, Technical Director

RP-1/PP-1/SP-1



 Seattle
 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244 425.420.9200 fax 425.420.9210

 Spokana
 East 11115 Montgomery, Suite B, Spokane, WA 99206-4776 509.924.9200 fax 509.924.9290

 Portland
 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132 503.906.9200 fax 503.906.9210

 Bend
 20332 Empire Avenue, Sulte F-1, Bend, OR 97701-5711

 541.383.9310 fax 541.382,7588

 Anchorage
 2000 W. International Airport Rd, Suite A-10 Anchorage, AK

99502-1119 907.563.9200 fax 907.563.9210

### **Drinking Water Analysis Results**

	SYSTEM IDENTIFICATION									
System:										
Address;										
City, State, Zip:										
PWS ID#:										
Submitted By:	Bodyc	ote FPL				ID: 233-0413	3020			
SAMPLE IDENTIFICATION										
Source ID:					Source Name:					
Sampled At: 0	114219				Sampled By:					
Date Collected:	4/14/200	6 Time Co	llected:	8:20	) am	Date Received:	4/14/200	)6		
Sample Composition:	Raw or	Treated		Source or I	Distribution	Single or	Combined			
Analyzing	North Cre	ek Analytical - Po	ortland	Lab Sar	mple ID: PPI	0658-03	ORLAP#:	100021		
SAMPLE RESULTS (mg/L)										
Inorganic Compounds - IOCs										
Contaminant	Code	MCL (mg/L)	Result	(mg/L)	Method	Analyzed	Analyst	Lab	OR Cert#	
Nitrate	1040	10	ND@	0.100	EPA 300.0	4/15/2006	SVW	NCAP	100021	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Sarain Richwell

Sarah Rockwell, Project Manager

North Creek Analytical, Inc. Environmental Laboratory Network

4 1 9 4 4 5 3 PUBL DRINK	LOGICAL ANALYSIS C WATER SUPPLIES NG WATER PROGRAM
Name of Water System:  ASN GTOVE CCMENT  Phone 503-286-1677 County MUT-  Collection date and time: 14/14/06 08: 20 am  Month Day Year Hour Min.  Type of sample: Routine 1 Repeat   Special 1 Special 1 Test Methods:  Type of sample: Routine   Repeat   Downstream   Other    Collected by: 1 CF PETSTM   Collected by: 1 CF   EC+MUG   Cytochrome oxidase    Chlorinated? Yes   No Free chlorine mg/l 15   Sample invalid: resample	Lab ID #
Return address for report:  Name Ash Grove Cement  Address 13939 N. Rivergate Bl.  City, state, zip Portland, OR. 97203  Send results to: DHS-Drinking Water Program: P.O. Box 14350, Portland OR 97293-0350 Phone	Copy Distribution: White: Lab Yellow: Dept. of Human Services Pink: Water System   Leaked

Enter Public Water System ID # in boxes below:	MICROBIOLOGICAL ANALYSIS RUBLIC WATER SUPPLIES DRINKING WATER PROGRAM	Laboratory Name*
Name of Water System:  ASh Grove Cevaen+  Phone 503-286-1677 County Mult.	LABORATORY RESULTS  Total colligras   Carrier   Carrier   Fecal colligras   Carrier   Carrier   Fecal colligras   Carrier   Carrier   Fecal colligras   Carrier   Fecal colligras   Carrier   Fecal colligras   Carrier   Fecal colligrams   Fecal coll	
Collection date and time: D4 106 08: 20 m.  Type of sample: Routine 0 Repeat 0 Special  "If repeat, location: 0 Upstream 0 Same 0 Downstream 0 Other  Collected by 18 PETSON  Sample point 18 SIAK  Chlorinated? Pes 0 No Free chipme mp/1 2 15		Lab ID  Sample #
Return address for report:  Name Ash Grove Cemen Address 13939 W. Rivergo City, state, zip: Portland OR  Send results to: DHS-Drinking Water Program: P.O. Box 14350,	TEBL Pric Water System Form #50-90 (Rev. 1/02)	Immelidation reason:  Citeaked

3rd qtr 2006

www.coffeylabs.com www.onlinelab.com

Gary Wright
Ash Grove Cement West
13939 N Rivergate Blvd
Portland, OR 97203

**Oregon Coliform Report:** Page 1 of 1

Report Date: July 8, 2006 Job Number: A60707BC PWSID: 94453

Name: Ash Grove Cement West

Sample Information Samples Collected By: Ivan Taylor			Custody By: MRH Laboratory Results					82
Comple leastion	Chlorine Residual	Date	Date	Date	Sample #	Method	Results	Notes
Sample location	Type Time	Time	e Time	Time	Batch #	Analyst	Kesuits	
Lab Sink Ash Grove Cement	0.04 mg/L Chlorine Routine sample	07/07/06 09:00	07/07/06 13:03	07/07/06 14:40	A60707BC1 6070087	SM 9223 B NCM	Tot. Coliform Absent E. coli Absent	1

The results were negative. No further action is needed until the next sampling event.

WARNING: SAMPLE RESULTS NEED TO BE SENT TO THE STATE BY THE 10TH OF THE NEXT MONTH. Address: Monitoring & Compliance, DHS - Drinking Water Program, PO Box 14350, Portland OR 97293-0350

The above report was reviewed by	Nan	(503) 254-1794
The above report was reviewed by		(303)23:177:

Thank you for sending your samples to Coffey Laboratories. If you have questions, or need help, please call

#### Notes:

The Notes column after laboratory results indicates which CLI branch performed the analysis.

- 1. Analysis done at Pertland Branch ORELAP OR 108028
- 2. Analysis done at Pendelton Branch ORELAP OR100029

Coffey Laboratories, Inc.





# JUL 20 2006

Ash Grove Rivergate

Sample results: Page 1 of 1 July 12, 2006 Report Date:

Job Number: A60707BD Client ID: Ashgrovece

SYSTEMUDENTINGATION

Name: System ID: Ash Grove Cement West

Source ID: Source Name: EP for Well

EP-A

Address:

13939 N Rivergate Blvd

City, State, Zip:

Sampled at:

Portland, OR 97203

SAMPLE IDENTIFICATION

Sampled by:

Ivan Taylor

Date Collected:

Lab Sink 7/7/2006

94453

Time Collected:

0900

Sample Composition:

Treated/Distribution/Single

LABORATORY INFORMATION

Date Received in Lab: 7/7/2006

A60707BD-1 Batch: 6070096 25

Date Analyzed:

7/8/2006 0:35:

Lab Sample ID: Analyzed at:

Portland, OR

ORELAP# 100028

Composite Sample: No Result Sent To State: No.

ANALYTICAL RESULTS

Contaminant	Code	MCL	Analysis	Unit	LRL	Method	Analyst Note	S
Nitrate	5	10.	0.1	mg/L	0.1	EPA 300.0	ZM	1

Recommended holding time was in accordance with method specific and/or data quality objectives specified in the Coffey Laboratories (CLI) Quality Assurance Plan (QAP). All analyses were performed according to the CLI QAP and met requirements of National Environmental Laboratory Accreditation Conference (NELAC) standards as documented in the Sample Results section of this report. All results pertain only to samples submitted, are for the sole and exclusive use of the above-named client, and are provided under the terms and conditions of the CLI Chain of Custody. Samples will be retained a maximum of 15 days from the report date unless prior arrangements have been made.

Acronyms: H

Holding Time Exceeded

LRL

Laboratory Reporting Limit

ND

al Services

None Detected at LRL

RF.

Re-Extracted and Re-Analyzed

Note: 1. Analysis done at Portland Branch, ORELAP# OR100028

Thank you for allowing CLI to be of service to you, we appreciate your business. If you have questions or need further assistance, please do not hesitate to call our Customer Services Department.

Singerely,

Ver 2005285 qe0 DN 07/12/06 8:10:03

See Narrative for explanation of notes and abbreviations

Coffey Laboratories, Inc.



PORTLAND SEATTLE

VANCOUVER

EUGENE

BEND TRI-CITIES

September 27, 2006

Ash Grove Cement Company C/o Mr. Glenn Dollar 13939 N. Rivergate Blvd. Portland, Oregon 97203

Via Email Only: glenn.dollar@ashgrove.com

## PROPOSAL TO TEST GROUNDWATER MONITORING WELLS 13939 N. RIVERGATE BLVD., PORTLAND, OREGON

Dear Mr. Dollar:

PBS is pleased to present this proposal to collect and test groundwater samples from the existing onsite wells. PBS installed three permanent wells at the property in 1992, for the purpose of monitoring for potential releases from large aboveground storage tanks (waste oil and fuel oil) in the vicinity. In 1992, groundwater at two of the wells contained dieselfraction petroleum hydrocarbons and in one of the two wells, a low level of pyrene (PAH).

The wells were tested again in 1998 by PBS, and no BTEX, PAHs or petroleum hydrocarbons were detected in any of the wells. At this time, it is understood that the operations requiring the aboveground oil storage have been shut-down and the tanks are to be removed, and that Ash Grove wishes for the wells to be tested.

### SCOPE OF SERVICES:

On-site Groundwater Monitoring Wells. It is assumed that the three existing wells are accessible and in good condition. If the well caps cannot be removed, it may be necessary to cut the lock; we have assumed the client will replace the lock.

The depth to the static water level will be measured in each of the three wells prior to sampling, using an electronic water level indicator. The relative elevations of the water table will be recorded on field forms. Groundwater samples will be collected from the wells using dedicated disposable bailers. Prior to sampling, three well volumes of water will be removed and parameters (temperature, conductivity, pH) measured after each well volume, to ensure fresh formation water.

4412 SW Corbett Portland, OR 97201 503.248.1939 MAIN 503.248.0223 FAX 888.248.1939 TOLLFREE

ENGINEERING AND ENVIRONMENTAL

www.pbsenv.com

Ash Grove Cement Company Re: Groundwater Monitoring Well Testing, Portland, Oregon September 27, 2006 Page 2

Samples will be labeled and stored in an ice chest for transport to the laboratory accompanied by chain-of-custody documentation. Upon completion of sampling, the well cap will be replaced, and the well cover re-sealed.

All investigation-derived waste (IDW) (purge water) will sealed in a container and labeled, left onsite in an approved location pending receipt of laboratory analyses. Costs for disposal of IDW are not included here.

**Laboratory Analysis.** Three groundwater samples will be analyzed for BTEX (EPA Method 8020M); PAHs (EPA Method 8270SIM); and Total Petroleum Hydrocarbons (NWTPH-HCID).

This laboratory work will be performed under regular (7 to 10 business days) turnaround time. In the event contaminants of concern are detected by the laboratory, followup testing may be recommended, however costs for such followups are not included in our estimate, below, and this work will not be performed without prior authorization from the client.

**Report.** A letter report will be prepared which presents our findings, interpretation of the findings and opinion regarding the findings of the investigation. Included will be descriptions of field activities, a site plan showing well locations and groundwater potentiometric surface, results of analyses, copies of laboratory reports and chain-of-custody documentation.

### **SCHEDULE:**

Field work can likely be scheduled within one week of authorization to proceed, and will be completed within one day. Laboratory results will be available within 7 to 10 business days after completion of sampling, and will be communicated to the client at that time. Our final report can be completed within one additional week.

Ash Grove Cement Company Re: Groundwater Monitoring Well Testing, Portland, Oregon September 27, 2006 Page 3

### **COST ESTIMATE:**

PBS Labor\$1	,600
Laboratory Analysis	
-BTEX: 3 @ \$70/ea.	
-TPH-HCID: 3 @ \$60/ea.	
-PAHs: 3 @ \$185/ea.	
Laboratory Total:	945
Reimbursable Expenses	.400
Section 3.1 (ACC) 4.2 (ACC) 5.2 (ACC) 4.4 (AC	
TOTAL ESTIMATED FEE \$ 2	,945

The total fee for the above scope of work is not expected to exceed \$ 3,000. Additional analysis may be warranted in the event that contamination is detected. PBS will consult with the client prior to incurring any additional laboratory costs.

### LIMITATION OF SCOPE:

This study will be limited to the tests, locations and depths as indicated to determine the absence or presence of certain contaminants. The site as a whole may have other contamination that will not be characterized by this study. Further study may be recommended. The findings and conclusions of this work are not scientific certainties but, rather, probabilities based on professional judgement concerning the significance of the data gathered during the course of this investigation. PBS is not able to represent that the site or adjoining land contain no hazardous waste, oil or other latent condition beyond that detected or observed by PBS.

Unforeseen subsurface conditions such as impenetrable geologic formations or coarse fill material may prevent the completion of the proposed soil probe investigation. In this event, the work will stop and the client will be notified immediately.

The indicated fee and the terms under which our services are provided will be in accordance with the attached General Terms and Conditions for Professional Services ("Terms and Conditions") dated 07/2006 as modified for the client, which together with this proposal comprise the entire agreement between the parties. The Terms and Conditions may not be changed without the prior written consent of the parties.

Ash Grove Cement Company Re: Groundwater Monitoring Well Testing, Portland, Oregon September 27, 2006 Page 4

You may indicate acceptance of this agreement by returning a signed copy of this agreement or a purchase order incorporating the terms of the agreement, to my attention. Please feel free to contact me if you have any questions.

Sincerely,

Dulcy A. Berri, RG Senior Hydrogeologist

ACCEPTED BY:	
Name (please print)	
Signature	
Title	Date

Encl. General Terms and Conditions for Professional Services (07/2006) P:\PROPOSAL\LETTER\Env - Groundwater\AshGroveGWMonitor.sept06.doc



### GENERAL TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES

Attached to and part of our letter agreement to client outlining our specific scope of services:

The purpose of these General Terms and Conditions is to identify basic contractual obligations of PBS and Client for various professional consulting services, whereby PBS would be acting in the role of Consultant/Owner Representative for Client. Individual projects may require additional detailed descriptions of services to be provided as a supplement to this agreement.

- RIGHT OF ENTRY: Unless otherwise agreed, the Client will furnish PBS right-of-entry on real property and be responsible for the propriety of the time, place, and manner of our entry upon the real property where we are to perform our services. PBS will take reasonable precautions to minimize damage to the real property from use of equipment, but have not included in the fee the cost of restoration, unless specifically included in our scope of work. If the Client desires PBS to restore the real property to its approximate former condition, we will accomplish this and add the cost plus 15 percent to our fee.
- 2. BURIED UTILITIES: PBS field personnel are trained to initiate field testing, drilling and/or sampling within a reasonable distance of each designated utility location. PBS field personnel will avoid hazards or utilities that are observed by them at the site. If PBS is advised in writing of the presence or potential presence of underground or overground obstructions, such as utilities, we will give special instructions to our field personnel. PBS is not responsible for any damage or loss due to undisclosed or unknown surface or subsurface conditions owned by client or third parties. The client will hold PBS and PBS subcontractors harmless from any loss resulting from inaccuracy of markings, of plans, or lack of plans, relating to the location of utilities. Note: Utility locates typically requires 2 full working days advance notice.
- WORKER'S COMPENSATION INSURANCE: PBS will provide Worker's Compensation insurance (and/or Employer's Liability insurance) as required by state statutes.
- 4. <u>LIABILITY INSURANCE:</u> PBS carries comprehensive General Liability insurance which, subject to its terms and limits, may provide protection against liability arising out of bodily injury or property damage arising out of PBS operations. PBS makes no representations or warranties concerning the effect, applicability or scope of such insurance. Upon request in writing by Client to PBS, PBS will request its insurer to name Client as an additional insured on such policies and to issue certificates to Client to that effect. PBS makes no representations or warranties regarding any act by its insurer(s), and shall not be responsible for performing any act with respect to such insurance not specifically called for by this paragraph.
- 5. PROFESSIONAL LIABILITY AND LIMITATION THEREOF: This paragraph relates only to Professional Liability and not General Liability. In performing our professional services, we will use that standard of care and skill ordinarily recognized under similar circumstances by members of our profession in the state and region at the time the services are performed. No other warranty, either expressed or implied, is made in connection with our rendering of professional services.
- 6. CONTRACTED WORK: PBS, including its subconsultants, are retained hereunder for the limited purpose of performing certain environmental surveys, providing the results of such surveys to client, and making recommendations with respect to the data produced by the surveys. PBS is not responsible for the overall environmental status of Client's project, for the interpretation of the survey results by others, for any use of its reports by Client or others except as specifically set forth herein, or for any other matter not encompassed in the specific assignment given to PBS by Client. Any unauthorized use or distribution of PBS's work shall be at the Client and recipient's sole risk. If Client desires to release, or for PBS to provide, our report(s) to a third party not described above for that party's reliance, PBS will agree to such a release provided we receive written acceptance from such third party to be bound by acceptable terms and conditions similar to this agreement, in addition to a fee for extending our liability to a new party. The Client shall indemnify, defend and hold harmless PBS and its subconsultants from any claims, damages, costs, losses and expenses, including but not limited to attorney fees and costs on arbitration, trial or appeal arising out of unauthorized or third party use of PBS' reports.
- SAMPLES: All samples will be discarded 30 days after submission of our final report unless other arrangements are made.
- 8. PAYMENTS TO CONSULTANT: Invoices will be submitted periodically for prior services. An account will become delinquent 30 days after date of billing. It is agreed that a late charge will be added to delinquent accounts at the rate of one-and-one-half percent (1-1/2%) for each thirty days delinquent (provided the rate of such late charge shall not exceed the maximum allowable by the laws of the state in which our office submitting the invoice is located).
- RATE SCHEDULE: Fees for services are based on the number of hours expended on the project, including travel, by
  PBS personnel plus any reimbursable expenses. Our hourly rates will be billed as stated in our proposal or at our current
  hourly rates (available upon request).





#### 10. REIMBURSABLE EXPENSES:

- A. <u>Outside Services</u>. Subcontracted services such as subconsultants, labor, and technical services will be invoiced at cost plus 15 percent. Examples of services that may be subcontracted include other professional disciplines, soil boring, well installation, heavy and specialty equipment operators, geophysical surveys, and computer programming.
- B. <u>Supplies</u>. Charges for items not ordinarily furnished by PBS such as expendable equipment, rental equipment, subsistence, travel expenses, tolls, special fees, reproduction, permits, licenses, priority mail fees, and long-distance and wireless telephone calls will be invoiced at cost plus 10%.
- C. <u>Equipment</u>. Certain PBS-owned equipment (for sampling, testing, personal protective equipment, vehicle mileage, photocopying, etc.) may be required to complete the project. These will be invoiced at our standard rates without markup (rates available upon request).
- <u>Laboratory.</u> PBS utilizes both in-house and outside laboratories for sample analysis. We maintain a list of standard rates for sample analyses commonly utilized in conjunction with our services (available upon request).
- 11. OTHER PROVISIONS: Neither party shall hold the other responsible for delay in performance caused by acts of God, strikes, lockouts, weather, accidents, or other events beyond the control of the other or the other's employees and agents.

Waivers by either party of any provision, term, condition or covenant, shall not be construed by the other party as a waiver of a subsequent breach of the same by the other party by providing written notice. This agreement supersedes any contract language which may be issued by client as a matter of standard purchasing protocol without regard to the unique nature of professional services.

An opinion of construction, remediation and restoration costs prepared by PBS represents our judgment as a professional. Since we have no control over the cost of labor and material, or over competitive bidding or market conditions, we do not guarantee the accuracy of our opinion as compared to contractor bids of actual cost to the Client.

It is understood and agreed by both parties that PBS, in performing professional services for the Client with respect to hazardous or microbial substances, will make recommendations to the Client but does not have the authority or responsibility to decide where disposal or treatment takes place, nor to designate how or by whom the hazardous or microbial substances are to be transported for disposal or treatment. It is understood that PBS is not the generator or site operator and does not own the hazardous waste discovered, handled or removed from the owner's property. Client agrees under advice from client's counsel to timely disclosure to appropriate public agencies as required by law, any information that may be necessary to prevent damage to human health, safety, or the environment. Client agrees that PBS and its consultants are not responsible for the creation of the condition(s) PBS is being asked to investigate and that it would be unfair for PBS to be exposed to claims of injury or damage as a result of the conditions. In addition, Client understands that it is possible that exploration and investigation may fail to reveal the presence, location or source of the condition(s) being investigated even when the condition(s) is assumed or expected to exist. Client understands that PBS's failure to discover and/or locate the condition(s) or the spread of the condition(s) through appropriate and mutually agreed upon techniques does not guarantee that the condition(s) does or does not exist. Client agrees that it would be unfair to hold PBS liable for creating the condition(s) or the spread of the condition(s) providing PBS meets a reasonable standard of care and/or as described by supplemental proposal. Accordingly, Client waives any resulting claims against PBS and its consultants, and agrees to defend, indemnify and hold harmless PBS and its consultants from any and all claims or liability for injury or loss arising from the creation of the original condition(s) or the unintentional exacerbation of the original condition(s) by PBS, the exacerbation of hazardous conditions by others, the discovery of any condition, location of any condition and/or allowing any condition to exist. Client also agrees to fairly compensate PBS and its consultants for any time spent and expenses incurred in the defense of any such claim.

PBS does not provide legal opinions, and recommends client seek legal counsel for advice on issues such as the appropriateness of a particular scope of work to minimize legal liability, potential cost recovery from responsible parties, and to assess the value of maintaining attorney/client privilege for work conducted under this agreement.

In the event there is a dispute between PBS and the Client concerning the performance of any provision in this agreement, the losing party shall pay the prevailing party reasonable attorney's fees and costs on trial or appeal. In addition, Client agrees to pay PBS for all employee time, costs, and witness costs incurred for collection activity.

This agreement can be terminated at any time by either party. If terminated prior to the completion of a scope of work, PBS shall be entitled to its portion of fees for any work performed in accordance with the above rate schedule.





Gary Wright
Ash Grove Cement West
13939 N Rivergate Blvd
Portland, OR 97203

RECEIVED
OCT 18 2006

Ash Grove Rivergate

Oregon Coliform Report: Page  $1\ {\rm of}\ 1$ 

Report Date: October 12, 2006

**Job Number:** A61011Q **PWSID:** 94453

Name: Ash Grove Cement West

4th gt - 2006

Sample Information Samples Collected By: Ivan Taylor			Custody Laboratory Results By: MRH				
Chlorine Residual	rine Residual Date		Date	Sample #	Method	Decuite	Notes
Туре	Time	Time	Time	Batch #	Analyst	- Kesuits	
0.04 mg/L Chlorine Routine sample	10/11/06 09:00	10/11/06 11:26	10/11/06 13:10	A61011Q1 6100201	SM 9222-B NAC	Tot. Coliform  Absent  Feeal colifo	1
	Chlorine Residual  Type  0.04 mg/L Chlorine	Chlorine Residual Date Type Time  0.04 mg/L Chlorine 10/11/06	Chlorine Residual Date Date Type Time Time  0.04 mg/L Chlorine 10/11/06 10/11/06	Chlorine Residual   Date   Date   Date     Type   Time   Time   Time     0.04 mg/L Chlorine   10/11/06   10/11/06   10/11/06	Chlorine Residual Date Date Date Sample #  Type Time Time Time Batch #  0.04 mg/L Chlorine 10/11/06 10/11/06 10/11/06 A61011Q1	Chlorine Residual Date Date Date Sample # Method  Type Time Time Batch # Analyst  0.04 mg/L Chlorine 10/11/06 10/11/06 A61011Q1 SM 9222-B	Chlorine Residual   Date   Date   Date   Sample #   Method   Results

The results were negative. No further action is needed until the next sampling event.

WARNING: SAMPLE RESULTS NEED TO BE SENT TO THE STATE BY THE 10TH OF THE NEXT MONTH. Address: Monitoring & Compliance, DHS - Drinking Water Program, PO Box 14350, Portland OR 97293-0350

The above report was reviewed by	NCM	(503) 254-1794
The above report was reviewed by	M)CVV	(303) 2341794

Thank you for sending your samples to Coffey Laboratories. If you have questions, or need help, please call

### Notes:

The Notes column after laboratory results indicates which CLI branch performed the analysis.

- 1. Analysis done at Portland Branch ORELAP OR 100028
- 2. Analysis done at Pendelton Branch ORELAP OR100029

PWS IOST OR 4194453

Coffey Laboratories, Inc.



### RECEIVED

OCT 18 2006

Sample results: Page 1 of 1

Report Date:

October 16, 2006

Job Number: Client ID:

A61011R AshgroveCe

Ash Grove Rivergate

SYSTEM DESCRIPTION TO THE RESERVE OF THE STATE OF THE STA

Name:

Ash Grove Cement West

Source ID: Source Name:

System 1D: Address:

13939 N Rivergate Blvd

City, State, Zip:

Portland, OR 97203

Sampled at:

Lab

94453

Date Collected: Sample Composition: None Provided

10/11/2006

Sampled by:

Ivan Taylor

Time Collected:

0900

LABORATORY INFORMATION

SAMPLE IDENTIFICATION

Date Received in Lab: 10/11/2006

A61011R-1 Batch: 6100209

Date Analyzed:

10/11/2006 21:37

Lab Sample ID: Analyzed at:

Portland, OR

ORELAP# 100028

Composite Sample: Result Sent To State: No

ANALYTICAL RESULTS

Contaminant	Code	MCL	Analysis	Unit	LRL	Method	Analyst Not	es
Nitrate	1040	10.	0.1	mg/L	0.1	EPA 300.0	BAB	1

Recommended holding time was in accordance with method specific and/or data quality objectives specified in the Coffey Laboratories (CLI) Quality Assurance Plan (QAP). All analyses were performed according to the CLI QAP and met requirements of National Environmental Laboratory Accreditation Conference (NELAC) standards as documented in the Sample Results section of this report. All results pertain only to samples submitted, are for the sole and exclusive use of the above-named client, and are provided under the terms and conditions of the CLI Chain of Custody. Samples will be retained a maximum of 15 days from the report date unless prior arrangements have been made.

Acronyms: H

Holding Time Exceeded

LRL

Laboratory Reporting Limit

ND

None Detected at LRL

RE

Re-Extracted and Re-Analyzed

Note: 1. Analysis done at Portland Branch, ORELAP# OR100028

Thank you for allowing CLI to be of service to you, we appreciate your business. If you have questions or need further assistance, please do not hesitate to call our Customer Services Department.

Sincerely,

Fechnical Services

Ver 2005285 ac0 DN 10/16/06 12:07:20

See Narrative for explanation of notes and abbreviations

Coffey Laboratories, Inc.



Tax I.D. 62-0814289

Eat. 1970

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344 Lake Oswego, OR 97035

Report Summary

Friday October 20, 2006

Report Number: L265136 Samples Received: 10/13/06 Client Project: 18484.000

Description: Ashgrove Cement

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Reviewed By:

Mark W. Beasley, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 09227, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487 GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140 NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233 AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344 Lake Oswego, OR 97035 October 20, 2006

ESC Sample # : L265136-01

Date Received : October 13, 2006 Description : Ashgrove Cement

Site ID :

Project # : 18484.000

Sample ID MW-1

Collected By : Collection Date : 10/11/06 12:15

Parameter	Result	Det. Limit	Units	Method	Đate	Dil.
Benzene	BDL	0.00050	mg/l	8021B	10/14/06	1
Toluene	BDL	0.0050	mg/l	8021B	10/14/06	1.
Ethylbenzene	BDL	0.00050	mg/l	8021B	10/14/06	1
Total Xylene	BDL	0.0015	mg/l	8021B	10/14/06	1
Surrogate Recovery (77-118)			•			
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021B	10/14/06	1
Gasoline Range (C7-C10)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Mineral Spirīts	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Kerosene (C9-C16)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Diesel (C7-C26)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
#6 Fuel Oil (C10-C32)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Hydraulic Fluid (C12-C33)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Motor Oil (C16-C40)	BDL	0.25	mg/l	NWTPH~HCID	10/17/06	1
Surrogate Recovery(50-150)						
1-Methylnaphthalene	103.		% Rec.	NWTPH-HCID	10/17/06	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mg/l	8270C	10/19/06	1,
Acenaphthene	BDL	0.0010	mg/l	8270C	10/19/06	1
Acenaphthylene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo (a) anthracene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo(a)pyrene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo(b)fluoranthene	BDL	0.0010	mq/1	8270C	10/19/06	1
Benzo(g,h,i)perylene	BDL	0.00010	mg/l	8270C	10/19/06	1 1
Benzo(k)fluoranthene	BDL	0.00010	mg/l	8270C	10/19/06	1,
Chrysene	BDL	0.00010	mg/l	8270C	10/19/06	1
Dibenz(a,h)anthracene	BDL	0.00010	mg/l	8270C	10/19/06	1,
Fluoranthene	BDL	0.00010	mg/l	8270C	10/19/06	1
Fluorene	BDL	0.00010	mq/l	8270C	10/19/06	1
Indeno(1,2,3-cd)pyrene	BDL	0.00010	mg/l	8270C	10/19/06	1
Naphthalene	0.00010	0.00010	mg/l	8270¢	10/19/06	1
Phenanthrene	BDL	0.00010	mg/l	8270C	10/19/06	1 1
Pyrene	BDL	0.00010	mq/l	8270C	10/19/06	1.
1-Methylnaphthalene	BDL	0.00010	mq/l	8270C	10/19/06	1
2-Methylnaphthalene	BDL	0.00010	mg/l	8270C	10/19/06	1
Surrogaté Recovery						
Nitrobenzene-d5	71.4		% Rec.	8270C	10/19/06	1
2-Fluorobiphenyl	83.8		% Rec.	8270C	10/19/06	1
p-Terphenyl-dl4	71.2		% Rec.	8270C	10/19/06	1

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

The reported analytical results relate only to the sample submitted.

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Reported: 10/20/06 11:33 Printed: 10/20/06 15:19

Page 1 of 6



Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344 Lake Oswego, OR 97035

October 20, 2006

ESC Sample # : L265136-02

Date Received : October 13, 2006 Description : Ashgrove Cement

Project # : 18484.000

Sample ID

: MW-2

Site ID :

Collected By : Collection Date : 10/11/06 10:55

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	10/14/06	1
Toluene	BDL	0.0050	mg/l	8021B	10/14/06	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	10/14/06	1
Total Xylene	BDL	0.0015	mg/l	8021B	10/14/06	1
Surrogate Recovery (77-118)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	10/14/06	1
Gasoline Range (C7-C10)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Mineral Spirits	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Kerosene (C9-C16)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Diesel (C7-C26)	BDL	0.10	mg/1	NWTPH-HCID	10/17/06	1
#6 Fuel Oil (C10-C32)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Hydraulic Fluid (C12-C33)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Motor Oil (C16-C40)	BDL	0.25	mg/l	NWTPH-HCID	10/17/06	1
Surrogate Recovery (50-150)						
1-Methylnaphthalene	109.		% Rec.	NMIDH-HCID	10/17/06	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mg/l	8270C	10/19/06	1
Acenaphthene	BDL	0.0010	mg/l	8270C	10/19/06	1
Acenaphthylene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo (a) anthracene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo (a) pyrene	BDL	0.0010	mq/l	8270C	10/19/06	1
Benzo(b) fluoranthene	BDL	0.0010	mq/1	8270C	10/19/06	1
Benzo(g,h,i)pervlene	BDL	0.00010	mg/l	8270C	10/19/06	1
Benzo(k) fluoranthene	BDL	0.00010	mg/l	8270C	10/19/06	1
Chrysene	BDL	0.00010	mq/l	8270C	10/19/06	1
Dibenz(a,h)anthracene	BDL	0.00010	mg/l	8270C	10/19/06	1
Fluoranthene	BDL	0.00010	mq/l	8270C	10/19/06	1
Fluorene	BDL	0.00010	mg/l	8270C	10/19/06	1
Indeno(1,2,3-cd)pyrene	BDL	0.00010	mg/l	8270C	10/19/06	1
Naphthalene	BDL	0.00010	mq/l	8270C	10/19/06	1
Phenanthrene	BDL	0.00010	mg/l	8270C	10/19/06	ì
Pyrene	BDL	0.00010	mg/l	8270C	10/19/06	1
1-Methylnaphthalene	BDL	0.00010	mg/l	8270C	10/19/06	1
2-Methylnaphthalene	BDL	0.00010	mq/l	8270C	10/19/06	1
Surrogate Recovery						
Nitrobenzene-d5	68.4		% Rec.	8270C	10/19/06	1
2-Fluorobiphenyl	85.4		% Rec.	8270C	10/19/06	1
p-Terphenyl-dl4	68.1		% Rec.	8270C	10/19/06	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted. This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 10/20/06 11:33 Printed: 10/20/06 15:19

Page 2 of 6



Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344 Lake Oswego, OR 97035

October 20, 2006

ESC Sample # : L265136-03

Date Received : October 13, 2006 Description : Ashgrove Cement

Site ID :

Sample ID ; MW-3

Project # : 18484.000

Collected By : Collection Date : 10/11/06 12:40

Parameter	Result	Det. Limit	Units	Method	Da <u>te</u>	Dil.
Benzene	0.00058	0.00050	mg/l	8021B	10/14/06	1
Toluene	BDL	0.0050	mq/l	8021B	10/14/06	1
Ethylbenzene	BDL	0.00050	mq/l	8021B	10/14/06	ī
Total Xylene	BDL	0.0015	mq/l	8021B	10/14/06	1
Surrogate Recovery (77-118)						_
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	10/14/06	1
Diesel Range Organics (DRO)	0.12	0.10	mg/1	NWTPHDX	10/17/06	1
Residual Range Organics (RRO)	BDL	0.25	mg/l	NWTPHDX	10/17/06	1
Surrogate Recovery			-			
l-MéthylnaphthaÍene	103.		% Rec.	NWTPHDX	10/17/06	1
Gasoline Range (C7-C10)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Mineral Spirits	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Kerosene (C9-C16)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1 1
Diesel (C7-C26)	0.12	0.10	mg/l	NWTPH-HCID	10/17/06	1
#6 Fuel Oil (C10-C32)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Hydraulic Fluid (C12-C33)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Motor Oil (C16-C40)	BDL	0.25	mg/l	NWTPH-HCID	10/17/06	1
Surrogate Recovery(50-150)			_			
l-Methylnaphthalene	103.		% Rec.	NWTPH-HCID	10/17/06	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mg/l	8270C	10/19/06	1
Acenaphthene	BDL	0.0010	mg/l	8270C	10/19/06	1
Acenaphthylene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo(a)anthracene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo(a)pyrene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo(b) fluoranthene	BDL	0.0010	mq/l	8270C	10/19/06	1
Benzo(g,h,i)perylene	BDL	0.00010	mg/l	8270C	10/19/06	1
Benzo(k) fluoranthene	BDL	0.00010	mg/l	8270C	10/19/06	1
Chrysene	BDL	. 0.00010	mq/l	8270C	10/19/06	1
Dibenz (a, h) anthracene	BDL	0.00010	mq/l	8270C	10/19/06	1
Fluoranthene	BDL	0.00010	mg/l	8270C	10/19/06	ī
Fluorene	BDL	0.00010	mq/l	8270C	10/19/06	ī
Indeno (1, 2, 3-cd) pyrene	BDL	0.00010	mg/l	8270C	10/19/06	ī
Naphthalene	BDL	0.00010	mq/l	8270C	10/19/06	ī
Phenanthrene	BDL	0.00010	mg/l	8270C	10/19/06	i
Pvrene	BDL	0.00010	mg/l	8270C	10/19/06	î
1-Methylnaphthalene	BDL	0.00010	mg/l	8270C	10/19/06	î
2-Methylnaphthalene	BDL	0.00010	mq/l	8270C	10/19/06	ī
Surrogate Recovery		0,00010	9,		10, 10, 00	-
Nitrobenzene-d5	68.0		% Rec.	8270C	10/19/06	1
2-Fluorobiphenyl	84.8		% Rec.	8270C	10/19/06	ī
					10, 11, 00	-

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Page 3 of 6



Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344 Lake Oswego, OR 97035 October 20, 2006

Date Received :

October 13, 2006 Ashgrove Cement

ESC Sample # : L265136-03

Description

Site ID :

Sample ID

MW-3

Project # : 18484.000

Collected By : Collection Date :

10/11/06 12:40

Result Det. Limit Units Method Dil. Parameter Date p-Terphenyl-d14 45.2 % Rec. 8270C 10/19/06 1

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL) Note:
The reported analytical results relate only to the sample submitted.
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Page 4 of 6

### Attachment A List of Analytes with QC Qualifiers

Sample #	Analyte	Qualifier
L265136-03	p-Terphenyl-d14	J2

### Attachment B Explanation of QC Qualifier Codes

Qualifier	Meaning
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

- Definitions

  Accuracy The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision The agreement between a set of samples or between duplicate samples.

  Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

carry related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

Control Limits (AQ) (SS)

2-Fluorophenol 31-119 Nitrobenzene-d5 43-118 Dibromfluoromethane 68-128 64-125

Phenol-d5 12-134 2-Fluorobiphenyl 45-128 Toluene-d8 76-115 69-118

2,4,6-Tribromophenol 51-141 Terphenyl-d14 43-137 4-Bromofluorobenzene 79-127 61-134

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Page 6 of 6

### Summary of Remarks For Samples Printed 10/20/06 at 15:19:28

TSR Signing Reports: 134 RX - Priority Rush

Sample: L265136-01 Account: INTBROLOR Received: 10/13/06 09:00 Due Date: 10/23/06 00:00 RPT Date: 10/20/06 11:33 Deleted NWTPHDX, NWTPHGX, and SV8270PAH. Added HCID per MB. AV 10/16 Sample: L265136-02 Account: INTBROLOR Received: 10/13/06 09:00 Due Date: 10/23/06 00:00 RPT Date: 10/20/06 11:33 Deleted NWTPHDX, NWTPHGX, and SV8270PAH. Added HCID per MB. AV 10/16 Sample: L265136-03 Account: INTBROLOR Received: 10/13/06 09:00 Due Date: 10/23/06 00:00 RPT Date: 10/20/06 11:33 Deleted NWTPHDX, NWTPHGX, and SV8270PAH. Added HCID per MB. AV 10/16



PORTLAND

SEATTLE

VANCOUVER

EUGENE

BEND

TRI-CITIES

BANDON

### **TRANSMITTAL**

DATE:

October 30, 2006

TO:

Glenn Dollar

Ash Grove Cement

13939 N. Rivergate Blvd. Portland, OR 97203

FROM:

Heidi Yantz

**PROJECT NO:** 

18484.000

RE:

**Groundwater Monitoring Report** 

Glenn,

Per our discussion this morning, here is the groundwater monitoring report. Please call if you have any questions. Thank you for your business.

4412 SW Corbett Portland, OR 97239 503.248.1939 MAIN 503.248.0223 FAX 888.248.1939 TOLLFREE

ENGINEERING AND ENVIRONMENTAL

www.pbsenv.com



October 30, 2006

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BANDON

Mr. Glenn Dollar Ash Grove Cement Company 13939 N. Rivergate Blvd. Portland, Oregon 97203

Re: Groundwater Monitoring – October 2006 Oil Tank Farm Ash Grove Cement Lime Plant PBS Project #18484.000

Dear Mr. Dollar:

The following presents the results of the recent groundwater sampling conducted at the Ash Grove Cement Company Lime Plant at 13939 N. Rivergate Boulevard, Portland, Oregon. The purpose of the investigation was to monitor the groundwater quality in the tank farm area prior to potential abandonment required during tank farm decommissioning.

### 1.0 INTRODUCTION AND BACKGROUND

The tank farm consists of one 420,000-gallon waste oil tank, one 25,000-gallon off-spec waste oil tank, and one 4,000-gallon #2 fuel oil tank. All tanks are aboveground. The two larger tanks are oriented vertically and rest on flat concrete bases. The smaller tank is oriented horizontally and is mounted on concrete saddles. The 25,000-gallon tank had previously contained diesel fuel.

In December 1992, PBS installed three groundwater-monitoring wells in the tank farm area, each to a depth of 15 feet. Samples were collected from each well on January 8, 1993. Results were summarized in a letter dated February 26, 1993. Diesel range organics were detected in wells MW-1 and MW-2.

The wells were sampled again on April 22, 1993 to follow up on the TPH detections. Results were summarized in a letter dated June 11, 1993. Pyrene (a polynuclear aromatic hydrocarbon or PAH) was detected at low levels in MW-3.

On April 16, 1998, PBS monitored the three wells by collecting samples for analysis of Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and PAHs. Results were summarized in a letter dated June 18, 1998. There were no detections of any compound analyzed.

4412 SW Corbett Portland, OR 97239 503.248.1939 MAIN 503.248.0223 FAX 888.248.1939 TOLLFREE

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Mr. Glenn Dollar Ash Grove Cement Re: Groundwater Monitoring October 30, 2006 Page 2 of 2

### 2.0 MONITORING WELL SAMPLING AND ANALYSIS

PBS Hydrogeologist Heidi Yantz was on site on October 11, 2006 to conduct groundwater monitoring at the three wells. Prior to sampling, the well caps were removed from each well and the water levels were allowed to equilibrate. Depth to water and depth to well bottom were then measured using an electronic water level indicator.

During the initial purging of groundwater, it was observed that the groundwater was very cloudy with rust-colored fine to medium size particles in all three wells. In addition, wells MW-1 and MW-3 were slow to recharge with MW-2 recovering slightly faster. Therefore, each well was purged multiple times until nearly dry in order to reduce the number of rusty particles in the groundwater samples. Once the purged groundwater became less cloudy, each well had three casing volumes removed. After each casing volume, groundwater parameters (pH, temperature and conductivity) were measured and recorded. Field forms showing the activity at each well are provided in Appendix A.

All purged groundwater was placed in 5-gallon buckets provided by Mr. Dollar and left adjacent to the tank farm for future disposal.

Groundwater samples were obtained from each well using dedicated disposable polyethylene bailers. The samples were collected in laboratory-provided containers, placed in an ice chest, and transported by hand, under chain of custody documentation, to Integrity Brokers for analysis by Environmental Science Corp laboratory. The samples were analyzed for TPH (method NWTPH-HCID), BTEX (method 8021B) and PAHs (method 8270C).

### 3.0 GROUNDWATER ELEVATIONS/FLOW DIRECTION

Groundwater measurements are presented in Table 1. Groundwater levels in the three wells are significantly lower than those measured in previous monitoring events. This is likely a seasonal effect, particularly given the wells' proximity to the Willamette River, which is typically lower in fall than any other season.

Figure 1 shows the inferred direction of groundwater flow to be to the northwest. This is consistent with the flow direction measured during the previous sampling events. It should be noted that the groundwater elevation is relative to a local datum and is not intended for comparison with other wells or surface water bodies.

Mr. Glenn Dollar Ash Grove Cement Re: Groundwater Monitoring October 30, 2006 Page 3 of 3

### 4.0 LABORATORY RESULTS

A summary of the current and historical detections in groundwater is presented in Table 2. The laboratory report for the October 2006 monitoring event is provided as Appendix B.

Low levels of diesel range organics (120 ug/L) were detected in MW-3; TPH was not detected in MW-1 or MW-2. A low level detection of 0.58 ug/L of Benzene was detected in MW-3. There were no other BTEX detections in any of the wells. Naphthalene was detected at 0.1 ug/L in MW-1; there were no other detections of PAHs in any of the wells.

### 5.0 CONCLUSIONS

The low levels of contamination detected in the wells do not exceed the applicable state standards for occupational land use. Therefore, once the tank farm has been decommissioned, the wells can be properly abandoned per Oregon Administrative Rule (OAR) 690-240-0510. Care should be taken during the tank decommissioning to protect the wells from damage.

Please do not hesitate to call should you have any questions

Sincerely,

Heidi W Yantz

Hydrogeologist

Attachments:

Figures

Tables

Appendix A: Field Data Sheets

Appendix B: Laboratory Analytical Report



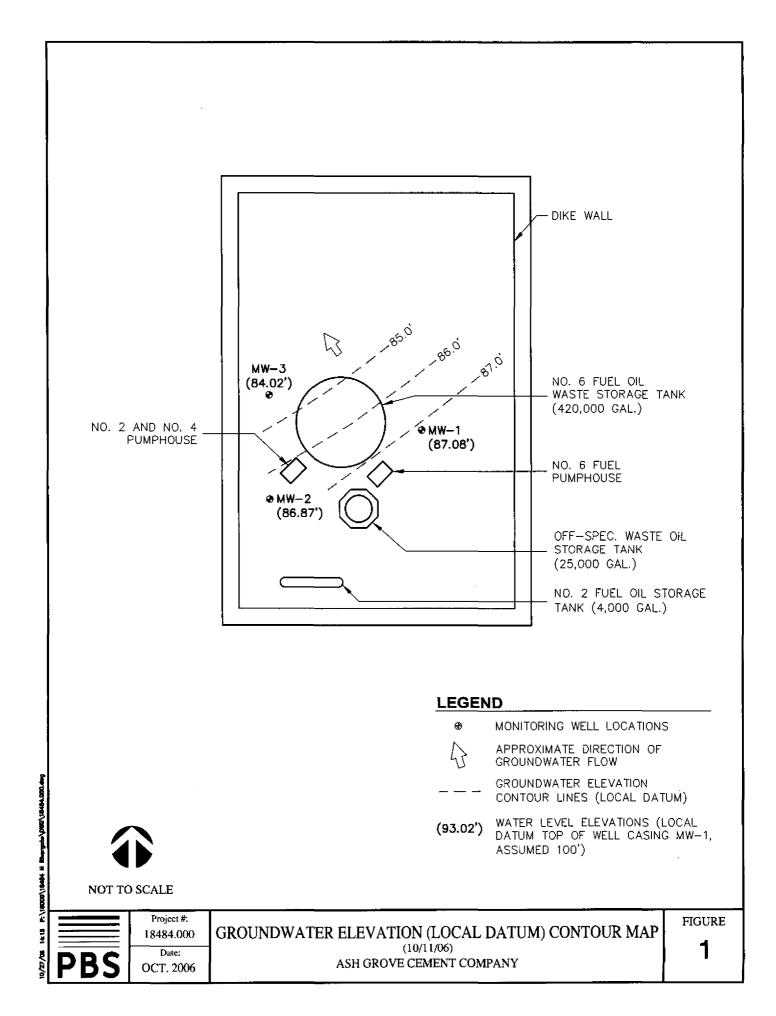




Table 1: Groundwater Elevations
Ash Grove Cement, Portland, Oregon

Monitor	Screened	Well Diameter	Top of Casing		Depth to Water from	Groundwater Elevation
Well ID	Interval (ft)	(in)	Elevation (ft) 1	Date	Top of Casing (ft)	(local datum 1)
		÷		1/8/1993	9.98	90.02
MW-1	10-15'	2	100	4/22/1993	8.68	91.32
10100-1	10-13	4	100	5/27/1998	6.76	93.24
				10/11/2006	12.92	87.08
	MW-2 10-15' 2		1/8/1993	9.79	89.41	
MANA/ O		2	99.2	4/22/1993	8.62	90.58
10104-2				5/27/1998	6.64	92.56
				10/11/2006	12.33	86.87
				1/8/1993	10.64	88.89
MW-3	10-15'	2	99.53	4/22/1993	6.49	93.04
IVIVV-3	10-15		99.00	5/27/1998	6.99	92.54
				10/11/2006	15.51	84.02

Wells installed to total depth of 15 feet below ground surface

<sup>&</sup>lt;sup>1</sup> Local datum from top of casing of MW-1, which was set at 100'

Table 2: Groundwater Analytical Results Ash Grove Cement, Portland, Oregon

						_	Polynuclear	
		Total Petroleum		Volatile Orga	anic Compound	<u>s</u>	Hydroca	rbons
Well ID	Sample Date	Hydrocarbons	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Pyrene
	1/8/1993	Diesel: 690	na	na	na	na	na	na
MW-1	4/22/1993	na	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1
	5/27/1998	nd	<0.5	<0.5	<0.5	<1.0	nd	nd
	10/11/2006	nd	<0.5	<5	<0.5	<1.5	0.1	<0.1
	1/8/1993	Diesel: 790	na	na	na	na	na	na
MW-2	4/22/1993	na	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1
10100-2	5/27/1998	nd	<0.5	<0.5	<0.5	<1.0	nd	nd
	10/11/2006	nd	<0.5	<5	<0.5	<1.5	<0.1	<0.1
	1/8/1993	nd	na	na	na	na	na	na
MW-3	4/22/1993	na	<0.5	<0.5	<0.5	<0.5	<0.1	0.12
10100-0	5/27/1998	nd	<0.5	<0.5	<0.5	<1.0	nd	nd
	10/11/2006	Diesel: 120	0.58	<5	<0.5	<1.5	<0.1	<0.1
OR Risk-	Ingestion/Inhalation							
Based	of Tapwater	Diesel: 350	2.2	2,900	5,400	820	25	4400
Ground	Volatilization to	and the second s			j gradusti i same			
water	Outdoor Air	The second secon	13,000	13,000,000	36,000,000	3,700,000	540000	nv
Cleanup	Vapor Intrusion into	Commission of the					And the desired	AND THE
Levels	Buildings	**	2,700	2,500,000	6,400,000	710,000	350000	עמ
(occupa-	Groundwater in					1996 - 1996		
tional)	Excavation		1,700	78,000	110,000	22,000	680	5800

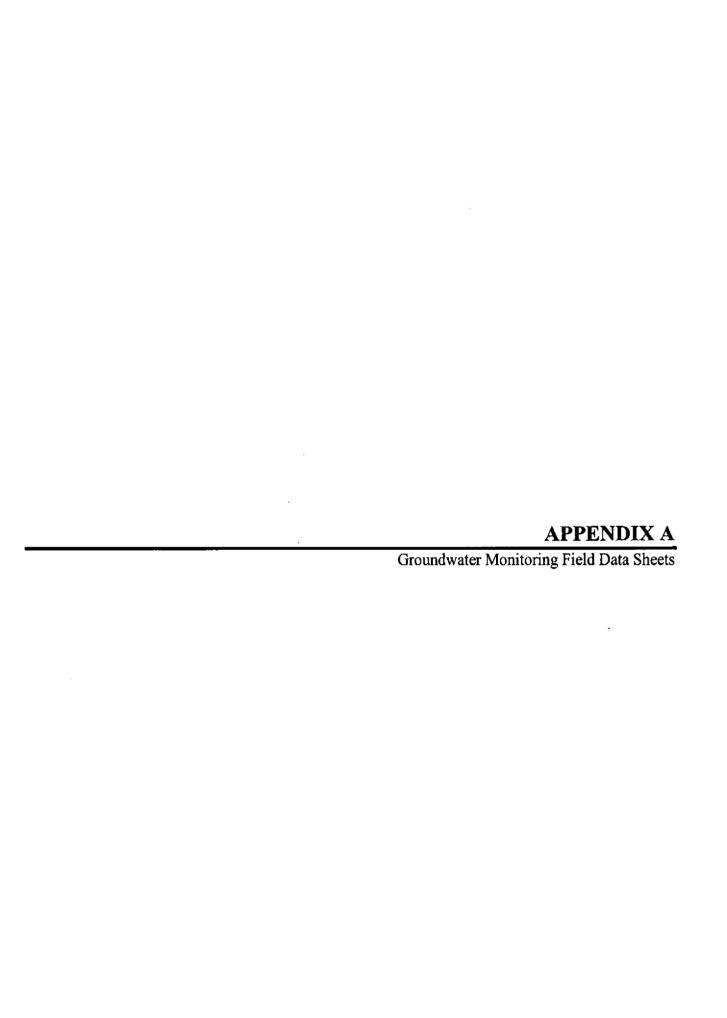
Concentrations in ug/L

NA: Analysis not conducted during this monitoring event

ND: Not detected above the detection limit

nv: Compound non-volatile, no standard set

\*\* Level varies depending on number of carbons



	Grou	ndwater Samplin	g Field Data Sho	eet	
	Date 10	11106	PBS Projec	n# 18484	1.000
PR	Well # <u></u>	iw-	Climatic C	onditions Supr	iy highsin 10w 70'S
ENVIRORMENT	•	10 well#0	(East)		10W70'S
	_				
	(a)	(b)	(a-b)	(a-b)x(0.163)	X(3.784)
Arrival	Depth to	Depth to	Depth	Casing	Casing
Time	Bottom (ft)	Water (ft)	Difference	Volume (gal.)	Volume (liters)
1150	16.35*	12.92	343	0.56	
Signif. figures:	(0.01)	(0.01)	(0.01)	(0.1)	(1)
Method disp	Scalole 100	ilec_	Pump Depthv	19	
Casing Volume	Time	Conductivity (mS/cm)	pН	Temp	Turbidity
1 075	1000		rater isfull of	rustyparticul	iti. Will want to
Have	purged 2.5	gal-barel	y lightening	g up	
1 05	1155	490	6,94	17.7	notlested
2 1.0	1700	469	6.94	16.7	
3 3.0	1204	472	6.91	16.5	
total pu	nged 4.5	aal			
Purge V	Vater Disposal <u>C</u>	containede	norte		
Pump S	tart Time pla	Pump	Stop Time 1/1	San	iple Time 1315
· -		salok logi	- — <del>- •</del>	ield Filtered? Y_	- -
	1001	1-1	1	Told Photod: 1_	
Sample		<u> </u>	<del>-</del> .		
Sampler's Prin	ited Name He	di Jantz			<i>*</i>
Sampler's Sign	ature_\DDO	y young	4	. 1 - 1	í
Notes + W	al water	19 3411	red, Sha	ghtly Clo	yudy _
-			-		<b>)</b>

			•	et et# <u>1848</u> 4	1000	,
	Date 10 Well # 1					
PD		y 10 well#	Climatic C	onditions SINN	low 70'S	
ENVIRONMEN	TAL ICHTIPOTAT	g 10 wair	2 (20)			
	(a)	(b)	(a-b)	(a-b)x(0.163)	X(3.784)	
Arrival Time	Depth to Bottom (ft)	Depth to Water (ft)	Depth Difference	Casing Volume (gal.)	Casing Volume (liters)	,
1040	14.88	12.33	4.55	0.74		
Signif. figures:	(0.01)	(0.01)	(0.01)	(0.1)	(1)	
Method 0150	osalole loa	ilec_	Pump Depth	la		
Casing Volume	Time	Conductivity (mS/cm)	рН	Temp (°C)	Turbidity	4. <
a gal		e toget rid	1 ) '		her two we	us)
0.75	1044	420	6.97	16.0	not treste	2.0
3 1.5	105	479	6,99	17.2		
		<del>                                     </del>	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	10,0		•
total purged	5					<del>-</del>
10.16						-
Purge '	Water Disposal_ <u>(</u>	contained c	an orte			
Pump	Start Time_n a	Pump	Stop Time V	<u>λ</u> Sam	ple Time <u>1055</u>	<u>5</u> .
Sample	e Method dispe	salole loat	ller F	ield Filtered? Y_	и_Х	
Sample	e #/ID	レーマ	_			
Sampler's Pri	nted Name_He_	di Pantz	· · · · · · · · · · · · · · · · · · ·			
Sampler's Sig	1/	Han	te			
Notes AVV		- dank li	MMV-nod	cloude	i hut n	7
NA J		whiles	, , , , , ,	Tomas		-

	Grou	ndwater Samplin	ig Field Data She	eet	
	Date	11106	PBS Projec	t# 18484	1.000_
DR	Well#M	W-3	Climatic C	onditions Guny	iu hughsin
		(y io well#	1 (nw)		low 70'S
			/		
	(a)	(b)	<u>(a-b)</u>	(a-b)x(0.163)	X(3.784)
Arrival Time	Depth to Bottom (ft)	Depth to Water (ft)	Depth Difference	Casing Volume	Casing Volume
2000	<b>*</b>		170	(gal.)	(liters)
0940	17.31	15.51	2.30	0.38	(1)
Signif. figures:	(0.01)	(0.01)	(0.01)	(0.1)	(1)
Method 01500	scalole loa	ilec	Pump Depth	19	
Casing Volumequ	Time	Conductivity (mS/cm)	pН	Temp (°C)	Turbidity ,
1 0.5	0946	not taken, 1	pater 10 full c	frusty partic	ulate lettinguel peconer
3-1-	have purged	2 gal, is	lighteningu	P-16.0	
3 1.5	1126	629	7.04	17.8	not teste &
1 0.5	1	1	<b>か</b>	7	
9 1	1132	671	7.04	15.9	need to want for
3 125	1148	590	7.02	17.2	recovar
total purged	125 gal		t need to l	et recove	1 loclere cample
Purge W	/ater Disposal	onthined c	in orte		
Pump S	tart Time <u>pla</u>	Pump	Stop Time vol	Sam	nple Time 1740
Sample	Method AlGO	salok logi	•	ield Filtered? Y_	n X
	#/ID_ MW-		1	1014 1 1110104. 1_	• ·
			<del>-</del> .		
Sampler's Prin	ted Name_He\	1 1 //	· <del></del>		
Sampler's Sign			<u>r</u>		
Notes Wat	er remain	ned brude	- red with	rviable	particulates.
gomple i	20tor WAX	3 loss Cl	Media		

APPENDIX B

Laboratory Analytical Report

# Integrity Brokers, Inc.

# **CHAIN OF CUSTODY**

Page	of	l
1 45°	<u> </u>	

16043 SW Kimball Avenue, Lake Oswego, OR 97035 Phone (503) 636-8700 Fax (503) 697-4499 Mobile (503) 970-5500 Courier (503) 784-7477 Company: PBS Enamperina & Environmenta Project Manager: HP. (1 Phone: 417-7/096 Address: 4417 BU CONDEST PONHONO Email: HUO NEIGI - LIONIZ (DOOSENV.CO Fax: 97729 ANA EYSIS REQUEST: Laboratory #: SAMPLES ARE HELD FOR 30 DAYS Petroleum Hydrocarbons Organics Inorganics TCLP Storm Water Metals: ZH-EXT Al, Sb, As, Halogenated VOCs/GCMs 3270 GCMS Semivolatiles Ba, Be, Cd, OF CONTAINERS Ca. Cr. Co. CLP Volatiles \$260 8020M-BETX only Cu, Fe, Pb, 270 SIMS PAHS 1081 m PCBs only Hg. Mg. Mn. Mo, Ni, K, Se, Ag, Na, LAB ID CLP TI, V, Za SAMPLE ID M(1)mw-a RELINQUISHED BY: 1 RELINQUISHED BY: PROJECT INFORMATION SAMPLE RECEIPT 2 TRELINOUISHED BY: PROJECT #: 19494,000 TOTAL # OF CONTAINERS & COPROJECT NAME: 19494,000 COLVE, COMMENT COC SEALS INTACTS? Y/N/NA Date SIGNATURE: TOTAL # OF CONTAINERS (1) Date SIGNATURE: Date PURCHASE ORDER #: RECEIVED INTACT? Y / N ONGOING PROJECT? Y (N) RECEIVED TEMP Time Printed Name: Time Printed Name: Time PRIOR AUTHORIZATION REQUIRED FOR RUSH PROJECTS Normal Turn Around Time (TAT) = 5-10 Business Days 24 HR 48 HR 72 HR 4 DAY 5 DAY RUSH TAT Requested (circle) Company: SPECIAL INSTRUCTIONS: Call Duleyor deidi on HCID detects I RECEIVED BY: RECEIPED BY:-RECEIVED BY: 3 Date SIGNATURE: Date SIGNATURE: Date Time Printed Name: Time Printed Name: Time Company: Company: Sampled By:



December 4, 2006

PORTLAND
SEATTLE
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TRI-CITIES

Mr. Glenn Dollar Ash Grove Cement Company 13939 N. Rivergate Blvd. Portland, Oregon 97203

Re: Groundwater Monitoring – October 2006 Oil Tank Farm Ash Grove Cement Lime Plant PBS Project #18484.000

Dear Mr. Dollar:

The following presents the results of the October 2006 groundwater sampling conducted at the Ash Grove Cement Company Lime Plant at 13939 N. Rivergate Boulevard, Portland, Oregon. The purpose of the investigation was to monitor the groundwater quality in the tank farm area prior to potential abandonment required during tank farm decommissioning.

# 1.0 INTRODUCTION AND BACKGROUND

The tank farm consists of one 420,000-gallon waste oil tank, one 25,000-gallon off-spec waste oil tank, and one 4,000-gallon #2 fuel oil tank. All tanks are aboveground. The two larger tanks are oriented vertically and rest on flat concrete bases. The smaller tank is oriented horizontally and is mounted on concrete saddles. The 25,000-gallon tank had previously contained diesel fuel.

# 2.0 MONITORING WELL SAMPLING AND ANALYSIS

PBS Hydrogeologist Heidi Yantz was on site on October 11, 2006 to conduct groundwater monitoring at the three wells. Prior to sampling, the well caps were removed from each well and the water levels were allowed to equilibrate. Depth to water and depth to well bottom were then measured using an electronic water level indicator.

During the initial purging of groundwater, it was observed that the groundwater was very cloudy with rust-colored fine to medium size particles in all three wells. In addition, wells MW-1 and MW-3 were slow to recharge with MW-2 recovering slightly faster. Therefore, each well was purged multiple times until nearly dry in order to reduce the number of rusty particles in the groundwater samples. Once the purged groundwater became less cloudy, each well had three casing volumes removed. After each casing

4412 SW Corbett Portland, OR 97239 503.248.1939 Main 503.248.0223 FAX 888.248.1939 TOLLIFEL

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Mr. Glenn Dollar Ash Grove Cement Re: Groundwater Monitoring December 4, 2006 Page 2 of 2

volume, groundwater parameters (pH; temperature and conductivity) were measured and recorded. Field forms showing the activity at each well are provided in Appendix A.

All purged groundwater was placed in 5-gallon buckets provided by Mr. Dollar and left adjacent to the tank farm for future disposal.

Groundwater samples were obtained from each well using dedicated disposable polyethylene bailers. The samples were collected in laboratory-provided containers, placed in an ice chest, and transported by hand, under chain of custody documentation, to Integrity Brokers for analysis by Environmental Science Corp laboratory. The samples were analyzed for total petroleum hydrocarbons (TPH) (method NWTPH-HCID), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) (method 8021B) and polynculear aromatic hydrocarbons (PAHs) (method 8270C).

# 3.0 GROUNDWATER ELEVATIONS/FLOW DIRECTION

Groundwater measurements are presented in Table 1. Groundwater levels in the three wells are significantly lower than those measured in previous monitoring events. This is likely a seasonal effect, particularly given the wells' proximity to the Willamette River, which is typically lower in fall than any other season.

Figure 1 shows the inferred direction of groundwater flow to be to the northwest. This is consistent with the flow direction measured during the previous sampling events. It should be noted that the groundwater elevation is relative to a local datum and is not intended for comparison with other wells or surface water bodies.

## 4.0 LABORATORY RESULTS

The laboratory report for the October 2006 monitoring event is provided as Appendix B. A summary of the detections in groundwater is presented in Table 2.

Low levels of diesel range organics (120 ug/L) were detected in MW-3; TPH was not detected in MW-1 or MW-2. A low level detection of 0.58 ug/L of Benzene was detected in MW-3. There were no other BTEX detections in any of the wells. Naphthalene was detected at 0.1 ug/L in MW-1; there were no other detections of PAHs in any of the wells.

# 5.0 CONCLUSIONS

The low levels of contamination detected in the wells do not exceed the applicable state standards for occupational land use. Therefore, once the tank farm has been decommissioned, the wells can be properly abandoned per Oregon Administrative Rule

Mr. Glenn Dollar Ash Grove Cement

Re: Groundwater Monitoring

December 4, 2006 Page 3 of 3

(OAR) 690-240-0510. Care should be taken during the tank decommissioning to protect the wells from damage.

Please do not hesitate to call should you have any questions

Sincerely.

Heidi W Yantz

Hydrogeologist

# Attachments:

Figures Tables

Appendix A: Field Data Sheets

Appendix B: Laboratory Analytical Report



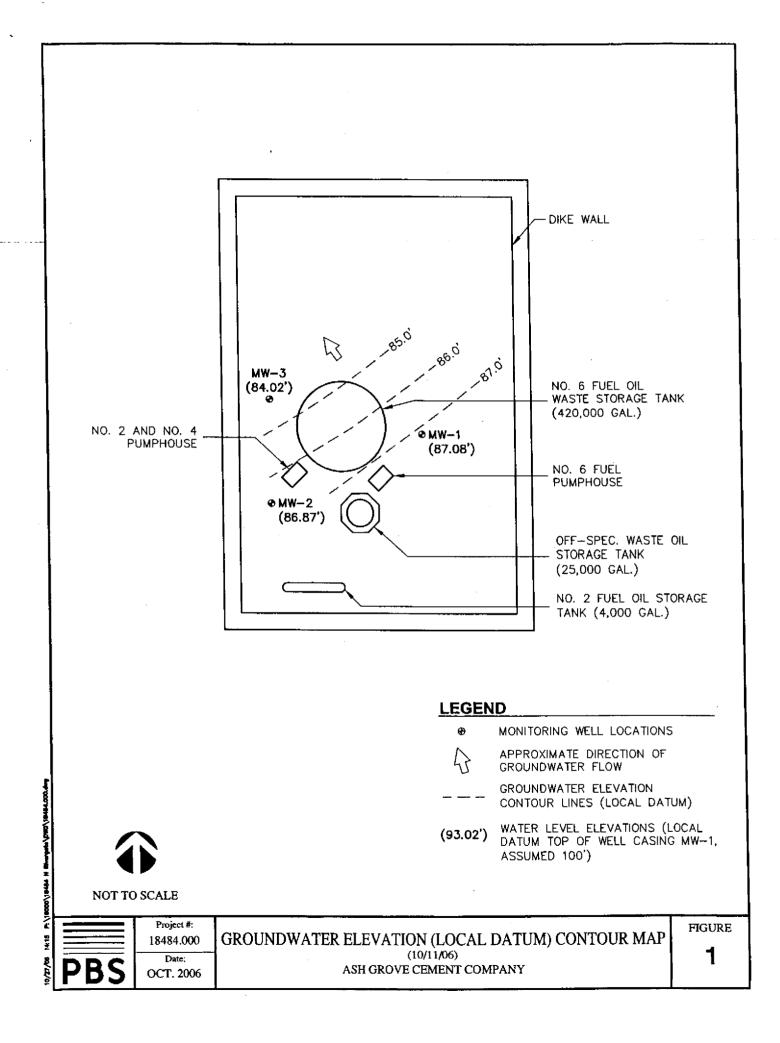




Table 1: Groundwater Elevations
Ash Grove Cement, Portland, Oregon

Monitor	Screened	Well Diameter	Top of Casing		Depth to Water from	Groundwater Elevation
Well ID	Interval (ft)	(in)	Elevation (ft) 1	Date	Top of Casing (ft)	(local datum ¹)
MW-1	10-15'	2	100	10/11/2006	12.92	87.08
MW-2	10-15'	2	99.2	10/11/2006	12.33	86.87
MW-3	10-15'	2	99.53	10/11/2006	15.51	84.02

Wells installed to total depth of 15 feet below ground surface

Appendix65-000229

<sup>&</sup>lt;sup>1</sup> Local datum from top of casing of MW-1, which was set at 100'

Table 2: Groundwater Analytical Results Ash Grove Cement, Portland, Oregon

		Total Petroleum	Γ	Volatile Orga	anic Compound	<u> </u>	Polynuclear Hydroca	
Well ID	Sample Date	Hydrocarbons	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	
MW-1	10/11/2006	nd	<0.5	<5	<0.5	<1.5	0.1	<0.1
MW-2	10/11/2006	nd	<0.5	<5	<0.5	<1.5	<0.1	<0.1
MW-3	10/11/2006	Diesel: 120	0.58	<5	<0.5	<1.5	<0.1	<0.1
OR Risk- Based	Ingestion/Inhalation of Tapwater	Diesel: 350	2.2	2,900	5,400	820	25	4400
Ground water	Volatilization to Outdoor Air		13,000	13,000,000	36,000,000	3,700,000	540000	ny
Cleanup Levels	Vapor Intrusion into Buildings		2,700	2,500,000	6,400,000	710,000	350000	ħΫ
(occupa- tional)	Groundwater in Excavation		1,700	78,000	110,000	22,000	680	5800

Concentrations in ug/L

ND: Not detected above the detection limit nv: Compound non-volatile, no standard set \*\* Level varies depending on number of carbons

# APPENDIX A

Groundwater Monitoring Field Data Sheets

et even Pitt in in		Groun	idwater Sampling	g Field Data She	et	
		Date 10	11/06	PBS Projec	ı# <u>18484</u>	.000
P	<b>{</b> (	Well#_M		Climatic C	onditions <u>Supp</u>	y, highain
ENVIRON		, temporary	10 well+2	(East)		10W 70'S
		(a)	(b)	(a-b)	(a-b)x(0.163)	X(3.784)
Arriva Time		Depth to Bottom (ft)	Depth to Water (ft)	Depth Difference	Casing Volume (gal.)	Casing Volume (liters)
1157		16.35*	12.92	3.43	0.56	
Signif. fig	ures:	(0.01)	(0.01)	(0.01)	(0.1)	(1)
Method_(	hopo	Galole loa	iler	Pump Depth	Na	
Casir Volum	- 1	Time	Conductivity (mS/cm)	рН	Temp (°C)	Turbidity  Turbidity  Turbidity  Turbidity
10	.75	1000	<del></del>	<del></del>	rustyparticul	ita. recover
		purged 2.5	gal-barel		gup	1 1 1
	25	1155	490	694	17.7	notlested
3 6	$\frac{D}{D}$	1300	469	6.94	16.7	
2/3	1.0	1204	1412	6.91	16.5	<del>                                     </del>
toto	it pu	ged 4.5	gal			
F	urge W	ater Disposal (	contained	en site		
		tart Time vola		Stop Time	O Sai	mple Time 1215
•		•		- <del></del>	Field Filtered? Y	
		100	scalole loa	Hev_	Fleid Filtered? 1	NX
	Sample	#/ID	W-1	<del>_</del> .		
Sample	r's Prin	ted Name	idi Yantz	<del>-</del>	• •	No.
Sample	r's Sign	ature_JTC	# Yant	4	-	t.
Notes_	fine	ul water	कि भा	tred, sh	ghtly Cl	oudy

		11106_	Ü	ı# <u>18484</u>	Looo	
DDC	Well #					
LD		y 10 well#	Climatic Co ろ (Gu)	onditions <u>Gunn</u>	10W 70'S	
EMATRONMENT	AL MAGNATURE	9 10 1001				
	(a)	(b)	(a-b)	(a-b)x(0.163)	X(3.784)	
Arrival Time	Depth to Bottom (ft)	Depth to Water (ft)	Depth Difference	Casing Volume (gal.)	Casing Volume (liters)	
1040	16.88	12.33	4.55	0.74		
Signif. figures:	(0.01)	(0.01)	(0.01)	(0.1)	(1)	
Method disp	osalole loo	ilec_	Pump Depth	19	_	
Casing Volume	Time	Conductivity (mS/cm)	pH	Temp (°C)	Turbidity	
2 gal	Initial purg	atoget rid	of particula	ate (not qui	tras rusty	15)
1 0.75	1044	626	7.04	16.2	not teste	D
2 1.5	1048	470	6.97	17.2		
3 2.25	1051	479	6.99	19.0		
- 1 100				<u> </u>		
total puge	<u> </u>	\ <u></u>			1 1	
Purge	Water Disposal_C	contained	enorte			
Pump	Start Time_n\a	Pump	Stop Time_v\	O Sa	mple Time <u>1055</u>	<b>5</b> .
Sampl	e Method <u>dl5p</u>	osalok loo	iler	Field Filtered? Y	N <u>_X</u>	
Sampl	le #/ID	W-7	· 			
Sampler's Pr	inted Name	idi Panta	7	_		
Sampler's Sig	gnature HG	dellan	ter			
Notes 1W	al worker	r Gank 1	MCK-100	1 cloud	y but n	01
Myst 1	visible p	orticles			<u>ل</u>	_
	1					

	Groun	idwater Samplin	_		
	Date 10	11/06	PBS Projec	1# 18484	.000_
DDC	Well #	112-3	Climatic Co	onditions Quant	u hughsin
$\mathbf{L}\mathbf{D}_{k}$		(y io well#	1 /ww/	onditions Gunni	10W70'S
ENVINONMENT	at romporus	y William	1 (hw)		
	(a)	(b)	(a-b)	(a-b)x(0.163)	X(3.784)
					Casing
Arrival Time	Depth to Bottom (ft)	Depth to Water (ft)	Depth Difference	Casing Volume	Volume
	<u> </u>			(gal.)	(liters)
0940	17.31	15.51	2.30	0.38	
Signif. figures:	(0.01)	(0.01)	(0.01)	(0.1)	(1)
Method d150	scalole loo	ilec	Pump Depth	19	<del>_</del>
-		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			<del></del>
Casing	Time	Conductivity	pН	Temp	Turbidity ,
Volumeau	0946	(mS/cm)	Inter in Cill	of meta meta	ulate lettinguellie
4	have purged		lightening		necon.
3 1.5	1126	629	7.04	17.8	not treste &
10.5	1100	100	1.01	7	
2 1	1130	671	7.04	15.9	need to want fex
7 175	114/3	500	707	17 2	recover
total puraed	125001	1370 L	1.00	11.0	+ Intaraminalin
total purgea	* you	<u> </u>	THEATO	let recove	11 logere ecomplis
Purge V	Water Disposal_(	contained a	en orte		
Pump S	Start Time na	Pump	Stop Time_v1	A Sai	mple Time <u>174</u> 0
Sample	e Method <u>disp</u>	osalok loo	iller	Field Filtered? Y	n <u>_X</u>
Sampl	e #/ID	-3	<del></del> .	•	
Sampler's Pri	nted Name He	idi Yantz	7	_	
Sampler's Sig	11.	de Yan	tr	_	
Notes War	ter remai	ned brid	L-red wH	hyrable	particulates.

sample water was loss cloudy

# APPENDIX B

Laboratory Analytical Report



Tax I.D. 62-0814289

Est. 1970

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344

Lake Oswego, OR 97035

Report Summary

Friday October 20, 2006

Report Number: L265136 Samples Received: 10/13/06 Client Project: 18484.000

Description: Ashgrove Cement

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not he state to call.

Reviewed By:

rk W. Beasley, ESC Representative

# Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 09227, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487 GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140 NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233 AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344 Lake Oswego, OR 97035 October 20, 2006

ESC Sample # : L265136-01

Date Received : Description

October 13, 2006

Site ID :

: Ashgrove Cement

Project # : 18484.000

Sample ID

Collected By : Collection Date : 10/11/06 12:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	10/14/06	1
Toluene	BDL	0.0050	mq/l	8021B	10/14/06	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	10/14/06	1
Total Xylene	BDL	0.0015	mq/l	8021B	10/14/06	1
Surrogate Recovery (77-118)						
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021B	10/14/06	1
Gasoline Range (C7-C10)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Mineral Spirits	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Kerosene (C9-C16)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Diesel (C7-C26)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
#6 Fuel Oil (C10-C32)	BDL	0.10	mq/l	NWTPH-HCID	10/17/06	1
Hydraulic Fluid (C12-C33)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Motor Oil (C16-C40)	BDL	0.25	mg/1	NWTPH-HCID	10/17/06	1
Surrogate Recovery (50-150)			-			
1-Methylnaphthalene	103.		% Rec.	NWTPH-HCID	10/17/06	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mq/1	8270C	10/19/06	1
Acenaphthene	BDL	0.0010	mg/l	8270C	10/19/06	1
Acenaphthylene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo (a) anthracene	BDL	0.0010	mq/l	8270C	10/19/06	1
Benzo (a) pyrene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo(b) fluoranthene	BDL	0.0010	mq/l	8270C	10/19/06	1
Benzo(g,h,i)perylene	BDL	0.00010	mq/1	8270C	10/19/06	1
Benzo(k) fluoranthene	BDL	0.00010	mg/l	8270C	10/19/06	1
Chrysene	BDL	0.00010	mq/l	8270C	10/19/06	ī
Dibenz(a,h)anthracene	BDL	0.00010	mq/l	8270C	10/19/06	1
Fluoranthene	BDL	0.00010	mg/l	8270C	10/19/06	1
Fluorene	BDL	0.00010	mg/l	8270C	10/19/06	ī
Indeno(1,2,3-cd)pyrene	BOL	0.00010	mg/l	8270C	10/19/06	ī
Naphthalene	0.00010	0.00010	mq/l	8270C	10/19/06	ī
Phenanthrene	BDL	0.00010	mg/l	8270C	10/19/06	ī·
Pyrene	BDL	0.00010	mg/l	8270C	10/19/06	ī
1-Methylnaphthalene	BDL	0.00010	mg/l	8270C	10/19/06	ī
2-Methylnaphthalene	BDL	0.00010	mg/l	8270C	10/19/06	ī
Surrogate Recovery		*******	mg, I	22100	25, 25, 66	_
Nitrobenzene-d5	71.4		% Rec.	8270C	10/19/06	1
2-Fluorobiphenyl	83.8		% Rec.	8270C	10/19/06	î
p-Terphenyl-d14	71.2		% Rec.	8270C	10/19/06	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Page 1 of 6



Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344 Lake Oswego, OR 97035 October 20, 2006

ESC Sample # : L265136-02

Site ID :

Project # : 18484.000

Date Received : October 13, 2006 Description Ashgrove Cement

Collected By : Collection Date :

Sample ID

10/11/06 10:55

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021B	10/14/06	1
Toluene	BDL	0.0050	mg/l	8021B	10/14/06	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	10/14/06	1
Total Xylene	BDL	0.0015	mq/l	8021B	10/14/06	1
Surrogate Recovery (77-118)			•			
a,a,a-Trifluorotoluene (PID)	101.		<pre>% Rec.</pre>	8021B	10/14/06	1
Gasoline Range (C7-C10)	BDL	0.10	mg/1	NWTPH-HCID	10/17/06	1
Mineral Spirits	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Kerosene (C9-C16)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Diesel (C7-C26)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
#6 Fuel Oil (C10-C32)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Hydraulic Fluid (C12-C33)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Motor Oil (C16-C40)	BDL	0.25	mg/l	NWTPH-HCID	10/17/06	1
Surrogate Recovery(S0-150)			-			
1-Methylnaphthalene	109.		% Rec.	NWTPH-HCID	10/17/06	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mg/l	8270C	10/19/06	1
Acenaphthene	$\mathtt{BDL}$	0.0010	mg/l	8270C	10/19/06	1
Acenaphthylene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo (a) anthracene	BDL	0.0010	mg/l	8270C	10/19/06	1
Benzo (a) pyrene	BDL	0.0010	mq/1	8270C	10/19/06	1
Benzo(b)fluoranthene	BDL	0.0010	mq/1	8270C	10/19/06	1
Benzo(g,h,i)perylene	BDL	0.00010	mg/l	8270C	10/19/06	1
Benzo(k)fluoranthene	BDL	0.00010	mg/l	8270C	10/19/06	1
Chrysene .	BDL	0.00010	mq/l	8270C	10/19/06	1
Dibenz (a, h) anthracene	BDL	0.00010	mg/l	8270C	10/19/06	1
Fluoranthene	BDL	0.00010	mq/1	8270C	10/19/06	1
Fluorene	BDL	0.00010	mg/l	8270C	10/19/06	1
Indeno(1,2,3-cd)pyrene	BDL	0.00010	mg/l	8270C	10/19/06	1
Naphthalene	BDL	0.00010	mg/l	8270C	10/19/06	1
Phenanthrene	BDL	0.00010	mq/l	8270C	10/19/06	1
Pyrene	BDL	0.00010	mq/l	8270C	10/19/06	1
1-Methylnaphthalene	BDL	0.00010	mg/l	8270C	10/19/06	1
2-Methylnaphthalene	BDL	0.00010	mg/l	8270C	10/19/06	1
Surrogate Recovery			<b>-</b>			
Nitrobenzene-d5	68.4		% Rec.	8270C	10/19/06	1
2-Fluorobiphenyl	85.4		% Rec.	8270C	10/19/06	1
p-Terphenyl-d14	68.1		% Rec.	8270C	10/19/06	1

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

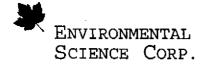
Note:

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Page 2 of 6



Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344 Lake Oswego, OR 97035 October 20, 2006

ESC Sample # : L265136-03

Date Received : October 13, 2006
Description : Ashgrove Cement

Site ID :

Sample ID : MW-3

Project # : 18484.000

Collected By : Collection Date : 10/11/06 12:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.00058	0.00050	mg/l	8021B	10/14/06	1
Toluene	BDL	0.0050	mg/l	8021B	10/14/06	1
Ethylbenzene	BDL	0.00050	mg/l	B021B	10/14/06	1
Total Xylene	BDL.	0.0015	mq/l	8021B	10/14/06	1
Surrogate Recovery (77-118)		******				
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	10/14/06	1
Diesel Range Organics (DRO)	0.12	0.10	mg/l	NWTPHDX	10/17/06	1
Residual Range Organics (RRO)	BDL	0.25	mg/l	NWTPHDX	10/17/06	1
Surrogate Recovery			-			
1-Methylnaphthalene	103.		% Rec.	NWTPHDX	10/17/06	1
Gasoline Range (C7-C10)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Mineral Spirits	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Kerosene (C9-C16)	BDL	0.10	mq/l	NWTPH-HCID	10/17/06	1
Diesel (C7-C26)	0.12	0.10	mq/l	NWTPH-HCID	10/17/06	1
#6 Fuel Oil (C10-C32)	$\mathtt{BDL}$	0.10	mg/l	NWTPH-HCID	10/17/06	1
Hydraulic Fluid (C12-C33)	BDL	0.10	mg/l	NWTPH-HCID	10/17/06	1
Motor Oil (C16-C40)	BDL	0.25	mq/l	NWTPH-HCID	10/17/06	1
Surrogate Recovery (50-150)					·	
l-Methylnaphthalene	103.		₹ Rec.	NWTPH-HCID	10/17/06	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mq/1	8270C	10/19/06	1
Acenaphthene	BDL	0.0010	mg/l	8270C	10/19/06	ī
Acenaphthylene	BDL	0.0010	mg/l	8270C	10/19/06	ī
Benzo(a) anthracene	BDL	0.0010	mq/l	8270C	10/19/06	ī
Benzo (a) pyrene	BDL	0.0010	mg/l	8270C	10/19/06	î
Benzo(b) fluoranthene	BDL	0.0010	mg/1	8270C	10/19/06	ĩ
Benzo(g,h,i)perylene	BDL	0.00010	mg/l	8270C	10/19/06	î
Benzo(k) fluoranthene	BDL	0.00010	mg/1	8270C	10/19/06	î
Chrysene	BDL	. 0.00010	mq/1	8270C 8270C	10/19/06	i
Dibenz(a.h)anthracene	BDL	0.00010	mg/l	8270C 8270C	10/19/06	i
Fluoranthene	BDL	0.00010		8270C	10/19/06	i
Fluoranchene	BDL		mg/1	8270C 8270C	10/19/06	1
	BDL	0.00010	mg/1	8270C 8270C	10/19/06	1
Indeno(1,2,3-cd)pyrene		0.00010	mg/1			i
Naphthalene	BDL	0.00010	mg/l	8270C	10/19/06	
Phenanthrene	BDL	0.00010	mg/l	8270C	10/19/06	1 1
Pyrene	BDL	0.00010	mg/l	8270C	10/19/06	i
1-Methylnaphthalene	BOL	0.00010	mg/1	8270C	10/19/06	1
2-Methylnaphthalene	BDL	0.00010	mg/l	8270C	10/19/06	1
Surrogate Recovery	co c				10/30/00	,
Nitrobenzene-d5	68.0		% Rec.	8270C	10/19/06	1
2-Fluorobiphenyl	84.8		% Rec.	8270C	10/19/06	1

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

Page 3 of 6



Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Darwin Thomas Integrity Brokers 16869 SW 65th Avenue #344 Lake Oswego, OR 97035 October 20, 2006

Date Received :

October 13, 2006 Ashgrove Cement

ESC Sample # : L265136-03

Description

Site ID :

Project #: 18484.000

Sample ID

Collected By : Collection Date : 10/11/06 12:40

MW-3

Parameter	Result	Det. Limit	Units	Method	Date Dil.
p-Terphenyl-d14	45.2		% Rec.	8270C	10/19/06 I

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL) Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC. Reported: 10/20/06 11:33 Printed: 10/20/06 15:19

Page 4 of 6

# Attachment A List of Analytes with QC Qualifiers

Sample #	Analyte	Qualifier
L265136-03	p-Terphenyl-d14	J2

### Attachment B Explanation of QC Qualifier Codes

Oualifier

Meaning

J2

Surrogate recovery limits have been exceeded; values are outside lower control limits

### Oualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

### Definitions

- Accuracy The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision The agreement between a set of samples or between duplicate samples.

  Relates to how close together the results are and is represented by Relative Percent Differrence.
- Surrogate Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chem-

catermine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

Control Limits (AQ) (SS) ophenol 31-119 Nitrobenzene-d5 43-118 Dibromfluoromethane 68-128 64-125 12-134 2-Fluorobiphenyl 45-128 Toluene-d8 76-115 69-118 omophenol 51-141 Terphenyl-d14 43-137 4-Bromofluorobenzene 79-127 61-134 2-Fluorophenol 31-119 Phenol-d5 12-134 2,4,6-Tribromophenol 51-141

 Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Page 6 of 6

# Summary of Remarks For Samples Printed 10/20/06 at 15:19:28

TSR Signing Reports: 134 RX - Priority Rush

Sample: L265136-01 Account: INTBROLOR Received: 10/13/06 09:00 Due Date: 10/23/06 00:00 RPT Date: 10/20/06 11:33 Deleted NWTPHDX, NWTPHGX, and SV8270PAH. Added HCID per MB. AV 10/16 Sample: L265136-02 Account: INTBROLOR Received: 10/13/06 09:00 Due Date: 10/23/06 00:00 RPT Date: 10/20/06 11:33 Deleted NWTPHDX, NWTPHGX, and SV8270PAH. Added HCID per MB. AV 10/16 Sample: L265136-03 Account: INTBROLOR Received: 10/13/06 09:00 Due Date: 10/23/06 00:00 RPT Date: 10/20/06 11:33 Deleted NWTPHDX, NWTPHGX, and SV8270PAH. Added HCID per MB. AV 10/16

# Integrity Brokers, Inc.

Appendix65-000244

# **CHAIN OF CUSTODY**

Page _	į	_of		-
			_	

16043 SW Kimball Avenue, Lake Osw	vego, O	R 9703	35 .F	hone (	503) d	536-87	00	Fax (	(503)	697-	4499	Mo	bile (	(503)	970	-55.00	0 C	ourier (503)	784-	7477	•								
Company: PBS Engineeriv Address: 4412 600 Coxlor	100	- En	VIIC	וחמ	ent	01						Proje	ct Ma	nager:	H	Dil	11	Yantz				Phon	e: L	717	-7	100	12	1	
Address: 4417 SW Coxlox	21	R	HVC	$\alpha x \alpha$	7	170	77 <sub>0</sub>	9				Emai	12	40	שח	10	_(1	MOTE (M)	de	ะเวบ	20	Fax:	-	74 4		77	~		
Laboratory #:					*******	學問題	eres i	Est (	非法。	14 to 12	(1)	ighter Times	क्षा अह	وبروك	adž., ky	- Al	VAE	SIS REQUE	ST	191619	H4FHB	m, in	Lija je ta j	EWN	经研修	ejälne:	e Hall	jak 4	
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SAMPLE ID  MW-1  MW-3  MW-3	DATE DATE		S MATRUX	T OF ELLABID	DO D'A OF CONTAINERS	Lett	NWTPH-CX	XG-H4TWN	C C C 8020M-BETX only		s/GCMs	8260 GCMS Volatiles	tiles				Metals (13)	Metals: Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, NI, K,	TCLP Metals (8)	TCLP Volatiles \$260 ZH-EXT		Z-9021	1200-COLS						
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PROJECT INFORMATION PROJECT #: 18484,000 PROJECT NAME: 1840,000 (Calle Cleary PURCHASE ORDER #: ONGOING PROJECT? Y (N)	vent	TOTAL: COC SE RECEIV RECEIV	# OF CO ALS INT ED INT ED TEN	ACT?	RS Z Y/N	760 /NA				Printed	TURE:		lov			Date S IID Time I	SIGNA 7	NQUISHED BY ATURE: 1 Name:	·•			Date	SIGNA	NQUIS ATURE I Name	È: 	BY:			Date Time
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Gary Wright Ash Grove Cement West 13939 N Rivergate Blvd Portland, OR 97203 **Oregon Coliform Report:** Page 1 of 1

Report Date: January 12, 2007

**Job Number:** A70111Z **PWSID:** 94453

Name: Ash Grove Cement West

RECEIVED
JAN 19 2007

Ash Grove Rivergate

Sar Samples Collect	Custody By: MRH		Laboratory Results							
Samuela lacation	Chlorine Residual	Date	Date	Date	Sample #	Method	Results	Notes		
Sample location	Туре	Time	Time	Time	Batch #	Analyst	- Kesuits			
Lab Sink 13939 N Rivergate	2. mg/L Chlorine Routine sample	01/11/07 08:35	01/11/07 13:32	01/11/07 13:50	A70111Z1 7010200	SM 9222-B NAC	Tot. Coliform  Absent  Fecal colifo  Absent	1		

The results were negative. No further action is needed until the next sampling event.

WARNING: SAMPLE RESULTS NEED TO BE SENT TO THE STATE BY THE 10TH OF THE NEXT MONTH. Address: Monitoring & Compliance, DHS - Drinking Water Program, PO Box 14350, Portland OR 97293-0350

The above report was reviewed by	NOW		(503) 254-1794
Thank you for sending your samples to	Coffey Laboratories. If you h	ave questions, or need help, please call	

<u>Notes:</u>

The Notes column after laboratory results indicates which CLI branch performed the analysis.

- 1. Analysis done at Pertland Branch ORELAP OR100028
- 2. Analysis done at Pendelton Branch ORELAP OR180029



# RECEIVED FEB 05 2007

Ash Grove Rivergate

Sample results: Page 1 of 1

Report Date: Job Number: January 29, 2007 A70111AA

Client ID:

Ashgrovece

SYSTEMIDENTIFICATION

Name: System ID: Ash Grove Cement West

Source ID:

EP-A

94453

Source Name: EP for Well

Address: 13939 N Rivergate Blvd City, State, Zip:

Portland, OR 97203

SAMPLE IDENTIFICATION

Sampled at:

Lab Sink

Sampled by:

Ivan Taylor

Date Collected:

1/11/2007

Time Collected:

Date Analyzed:

0835

Sample Composition: Treated/Distribution/Single

LABORATORY INFORMATION

1/11/2007 20:00

Lab Sample ID:

Date Received in Lab: 1/11/2007

A70111AA-1Batch: 7010208 7

Composite Sample:

No

Analyzed at:

Portland, OR

ORELAP# 100028

Result Sent To State: No

ANALYTICAL RESULTS

Contaminant	Code	MCL	Analysis		LRL	Method	Analyst No	otes
Nitrate	1040	10.	0.2	mg/L	0.1	EPA 300.0	BAB	1

Recommended holding time was in accordance with method specific and/or data quality objectives specified in the Coffey Laboratories (CLI) Quality Assurance Plan (QAP). All analyses were performed according to the CLI QAP and met requirements of National Environmental Laboratory Accreditation Conference (NELAC) standards as documented in the Sample Results section of this report. All results pertain only to samples submitted, are for the sole and exclusive use of the above-named client, and are provided under the terms and conditions of the CLI Chain of Custody. Samples will be retained a maximum of 15 days from the report date unless prior arrangements have been made.

Acronyms: H

Holding Time Exceeded

LRL

Laboratory Reporting Limit

ND

None Detected at LRL

RE

Re-Extracted and Re-Analyzed

Note: 1. Analysis done at Portland Branch, ORELAP# OR100028

Thank you for allowing CLI to be of service to you, we appreciate your business. If you have questions or need further assistance, please do not hesitate to call our Customer Services Department.

Sincerely

See Narrative for explanation of notes and abbreviations

Coffey Laboratories, Inc.

Ver 2005285 qc0 DN 01/29/07 15:38:15



Ivan Taylor Ash Grove Cement West 13939 N Rivergate Blvd Portland, OR 97203 Oregon Coliform Report: Page 1 of 1

**Report Date:** April 21, 2007 **Job Number:** A704200 **PWSID:** 94453

Name: Ash Grove Cement West

Samples Collect	Custody By: MRH	Laboratory Results						
Sample location	Chlorine Residual	Date	Date	Date	Sample #	Method	→ Results	Notes
Sample location -	Туре	Time	Time	Time	Batch #	Analyst	Results	
Lab Sink	0.4 mg/L Chlorine Routine sample	04/20/07	04/20/07	04/20/07	A70420O1	SM 9222-B	Tot. Coliform	
13939 N Rivergate Blvd.	Result sent to State	08:05	10:46	11:40	7040354	NCM	Absent Fecal colifo Absent	1

The results were negative. No further action is needed until the next sampling event.

The above report was reviewed by	Nam	(503) 254-1794
The doore report was reviewed by		(505) 25 (17)

Thank you for sending your samples to Coffey Laboratories. If you have questions, or need help, please call

# Notes:

The Notes column after laboratory results indicates which CLI branch performed the analysis.

- 1. Analysis done at Portland Branch ORELAP OR100028
- 2. Analysis done at Pendelton Branch ORELAP OR100029





MAY 01 2007

Ash Grove Rivergate

Sample results: Page 1 of 1 Report Date: April 24, 2007 Job Number: A70420Q

SYSTEM IDENTIFICATION

Name:

Ash Grove Cement West

System ID:

94453

Address:

Source Name: EP for Well

City, State, Zip:

13939 N Rivergate Blvd Portland, OR 97203

SAMPLE IDENTIFICATION

Sampled at:

Lab Sink

Sampled by:

Client ID:

Ivan Taylor

**Date Collected:** 

4/20/2007

Time Collected:

0805

AshGroveCe

Sample Composition: Treated/Distribution/Single

**LABORATORY INFORMATION** 

Date Analyzed:

4/20/2007

Date Received in Lab: 4/20/2007 Lab Sample ID:

A70420Q-1

**Batch:** 7040363

Composite Sample:

19:48

Analyzed at:

Portland, OR

ORELAP# 100028

Result Sent To State:

ANALYTICAL RESULTS

Contaminant	Code	MCL	Analysis	Unit	LRL	Method	Analyst Notes
Nitrate	1040	10.	ND	mg/L	0.1	EPA 300.0	TBC 1

Recommended holding time was in accordance with method specific and/or data quality objectives specified in the Coffey Laboratories (CLI) Quality Assurance Plan (QAP). All analyses were performed according to the CLI QAP and met requirements of National Environmental Laboratory Accreditation Conference (NELAC) standards as documented in the Sample Results section of this report. All results pertain only to samples submitted, are for the sole and exclusive use of the above-named client, and are provided under the terms and conditions of the CLI Chain of Custody. Samples will be retained a maximum of 15 days from the report date unless prior arrangements have been made.

Acronyms: H

Holding Time Exceeded

LRL

Laboratory Reporting Limit

ND

None Detected at LRL

RE

Re-Extracted and Re-Analyzed

Note: 1. Analysis done at Portland Branch, ORELAP# OR100028

Thank you for allowing CLI to be of service to you, we appreciate your business. If you have questions or need further assistance, please do not hesitate to call our Customer Services Department.

ethnical Ser

Ver 2005285 qc0 DN 04/24/07 12:59:22

See Narrative for explanation of notes and abbreviations

Coffey Laboratories, Inc.

12423 N.E. Whitaher Way, Portland, OR, 97238, (503) 254-1794, FAX (503) 254-1452 419 SW 5th St, Pendleton, OR, 97801, (541)276-0385, FAX (541) 276-0385 2392 S Hwy 97 Suite B, Redmond, OR, 97756, (541) 548-0972, FAX (541) 548-6345 Mailed - 7/11/07



Oregon Coliform Report: Page 1 of 1

Report Date: July 6, 2007 Job Number: A70705F PWSID: 94453

Name: Ash Grove Cement West

Ivan Taylor Ash Grove Cement West 13939 N Rivergate Blvd Portland, OR 97203

PWS ID# OR4194453

Samples Collecte	nple Information ed By: Client		Custody By: MWL		Laboratory	Results	<u> </u>
	Chlorine Residual	Date	Date	Date	Sample #	Method	Results 3
Sample location	Туре	Time	Time	Time	Batch#	Analyst	N-Sills
Lab Sink	1. mg/L Chlorine Routine sample	07/05/07 08:00	07/05/07 11:24	07/05/07 14:22	A70705F1	SM 9223 B NCM	Tot. Coliform
13939 N. Rivergate Blvd.		00.00		17.22	1010W3		E. coli Absent

The results were negative. No further action is needed until the next sampling event.

WARNING: SAMPLE RESULTS NEED TO BE SENT TO THE STATE BY THE 10TH OF THE NEXT MONTH. Address: Monitoring & Compliance, DHS - Drinking Water Program, PO Box 14350, Portland OR 97293-0350

The character was a few	110.00	(502) 254 170/
The above report was reviewed by	_NC	(503) 254-1794

Thank you for sending your samples to Coffey Laboratories. If you have questions, or need help, please call

### Notes:

The Notes column after laboratory results indicates which CLI branch performed the analysis.

- 1. Analysis done at Portland Branch ORELAP OR100028
- 2. Analysis done at Pendelton Branch ORELAP OR100029



Sample results: Page 1 of 1

Report Date: Job Number: July 17, 2007 A70705E

Client ID:

AshgroveCe

### SYSTEM IDENTIFICATION

ÉP-A

Source ID:

Name:

Ash Grove Cement West

System ID:

94453

Address: City, State, Zip: 13939 N Rivergate Blvd Portland, OR 97203

Sampled at:

Lab Sink

Date Collected:

7/5/2007

Sample Composition: Treated/Distribution/Single

SAMPLE IDENTIFICATION

Source Name: EP for Well

Sampled by:

Ivan Taylor

Time Collected:

0800

LABORATORY INFORMATION

Date Received in Lab: 7/5/2007 Lab Sample ID:

Analyzed at:

A70705E-1 Batch: 7070093 24 Portland, OR ORELAP# 100028 Date Analyzed:

7/7/2007 0:21:

Composite Sample: No Result Sent To State: No

ANALYTICAL RESULTS

Contaminant	Code	MCL	Analysis	Unit	LRL	Method	Analyst	Notes
Nitrate	1040	10.	0.1	mg/L	0.1	EPA 300.0	MGH	1

Recommended holding time was in accordance with method specific and/or data quality objectives specified in the Coffey Laboratories (CLI) Quality Assurance Plan (QAP). All analyses were performed according to the CLI QAP and met requirements of National Environmental Laboratory Accreditation Conference (NELAC) standards as documented in the Sample Results section of this report. All results pertain only to samples submitted, are for the sole and exclusive use of the above-named client, and are provided under the terms and conditions of the CLI Chain of Custody. Samples will be retained a maximum of 15 days from the report date unless prior arrangements have been made.

Acronyms: H

Holding Time Exceeded

LRL

Laboratory Reporting Limit

ND

None Detected at LRL

RΕ

Re-Extracted and Re-Analyzed

Note: 1. Analysis done at Portland Branch, ORELAP# OR100028

Thank you for allowing CLI to be of service to you, we appreciate your business. If you have questions or need further assistance, please do not hesitate to call our Customer Services Department.

Sincerely,

Technical Services

Ver 2005285 gc0 DN 07/17/07 12:27:25

See Narrative for explanation of notes and abbreviations

Mailed 10/15/07



**Oregon Coliform Report:** Page 1 of 1

**Report Date:** October 4, 2007 **Job Number:** A71002BN

**PWSID:** 94453

Name: Ash Grove Cement West

John Taylor Ash Grove Cement West 13939 N Rivergate Blvd Portland, OR 97203

PWS-ID#OR4194453

Sar Samples Collect	Custody By: LAO	Laboratory Results						
Sample location	Chlorine Residual Type	Date Time	Date Time	Date Time	Sample #	Method Analyst	Results	Notes
Lab Sink	Not Chlorinated Routine sample	10/02/07	10/02/07	10/02/07	A71002BN1 7100071	SM 9223 B NAC	Tot. Coliform  Absent	
13939 N Rivergate Blvd							E. coli Absent	'

The results were negative. No further action is needed until the next sampling event.

WARNING: SAMPLE RESULTS NEED TO BE SENT TO THE STATE BY THE 10TH OF THE NEXT MONTH. Address: Monitoring & Compliance, DHS - Drinking Water Program, PO Box 14350, Portland OR 97293-0350

The above report was reviewed by	 (503) 254-1794
The doore report was remember of	(200) =2 : 1,2

Thank you for sending your samples to Coffey Laboratories. If you have questions, or need help, please call

## Notes:

The Notes column after laboratory results indicates which CLI branch performed the analysis.

- 1. Analysis done at Portland Branch ORELAP OR100028
- 2. Analysis done at Pendelton Branch ORELAP OR100029

RECEIVED

OCT 09 2007

7sh Grove Rivergate

# maile & 10/15/07 PWS-ID #OR4194453



Sample results: Page 1 of 1

Report Date:

October 6, 2007

Job Number: Client ID:

A71002BO AshgroveCe

# SYSTEM IDENTIFICATION

Source ID:

Source Name:

Name: System ID: Ash Grove Cement West

Address:

13939 N Rivergate Blvd

City, State, Zip:

Portland, OR 97203

94453

Sampled at: **Date Collected:** 

Lab Sample ID:

Analyzed at:

Lab Sink 10/02/07

Sample Composition: None Provided

SAMPLE IDENTIFICATION

Sampled by:

Ivan Taylor

Time Collected:

0915

LABORATORY INFORMATION

Date Received in Lab: 10/02/07

A71002BO-1 Batch: 7100074 13

Date Analyzed:

10/02/07

21:30

Composite Sample: Result Sent To State: No

Nο

Portland, OR

ORELAP# 100028

ANALYTICAL RESULTS

Contaminant	Code	MCL	Analysis	Unit	LRL	Method	Analyst Notes	
Nitrate	1040	10.	0.15	mg/L	0.01	EPA 300.0	MGH	1

Recommended holding time was in accordance with method specific and/or data quality objectives specified in the Coffey Laboratories (CLI) Quality Assurance Plan (QAP). All analyses were performed according to the CLI QAP and met requirements of National Environmental Laboratory Accreditation Conference (NELAC) standards as documented in the Sample Results section of this report. All results pertain only to samples submitted, are for the sole and exclusive use of the above-named client, and are provided under the terms and conditions of the CLI Chain of Custody. Samples will be retained a maximum of 15 days from the report date unless prior arrangements have been made.

Acronyms: H

Holding Time Exceeded

LRL

Laboratory Reporting Limit

ND

None Detected at LRL

RE Re-Extracted and Re-Analyzed Note: 1. Analysis done at Portland Branch, ORELAP# OR100028

Thank you for allowing CLI to be of service to you, we appreciate your business. If you have questions or need further assistance, please do not hesitate to call our Customer Services Department.

Sincerely

RECEIVED

OCT 1 5 2007

Ash Grove Rivergate

Ver 2005285 qc0 DN 10/06/07 12:24:41

See Narrative for explanation of notes and abbreviations

Coffey Laboratories, Inc.

12423 N.E. Whitaker Way, Portland, OR, 97230, (503) 254-1794, FAX (503) 254-1452 419 SW 5th St, Pendleton, OR, 97801, (541)276-0385, FAX (541) 276-0385 2392 S Hwy 97 Suite B, Redmond, OR, 97756, (541) 548-0972, FAX (541) 548-6345 maile con 1/22/08



**Oregon Coliform Report:** Page 1 of 1

Report Date: January 9, 2008

Job Number: A80108D PWSID: 94453

Name: Ash Grove Cement West

Ivan Taylor Ash Grove Cement West 13939 N Rivergate Blvd Portland, OR 97203

PWS-IN#OR4194453

Samples Collect	Custody By: LAO	Laboratory Results				<u>s</u>		
Camanala la sadiasa	Chlorine Residual	Date	Date Time	Date Time	Sample # Batch #	Method	Results	Notes
Sample location	Туре	Time				Analyst		
Lab Sink	0.04 mg/L Chlorine	01/08/08	01/08/08	01/08/08	A80108D1	SM 9223 B	Tot. Coliform	
13939 N Rivergate Blvd	Routine sample	08:10	10:22	11:25	8010115	NCM	Absent E. coli Absent	1

The results were negative. No further action is needed until the next sampling event.

WARNING: SAMPLE RESULTS NEED TO BE SENT TO THE STATE BY THE 10TH OF THE NEXT MONTH. Address: Monitoring & Compliance, DHS - Drinking Water Program, PO Box 14350, Portland OR 97293-0350

The above	report was	reviewed l	hw.
The above	report was	reviewed i	DV

NCM

(503) 254-1794

Thank you for sending your samples to Coffey Laboratories. If you have questions, or need help, please call

# Notes:

The Notes column after laboratory results indicates which CLI branch performed the analysis.

- 1. Analysis done at Portland Branch ORELAP OR100028
- 2. Analysis done at Pendelton Branch ORELAP OR100029